Appendix D:

Addendum Geotechnical Report, Wood Trails,
August 2005

PREPARED FOR

PHOENIX DEVELOPMENT, INC.

August 1, 2005

ADDENDUM GEOTECHNICAL REPORT WOODTRAILS WOODINVILLE, WASHINGTON

ES-0067

Earth Solutions NW, LLC
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Earth Solutions NW LLC

• Geotechnical Engineering
• Construction Monitoring
• Environmental Sciences

August 1, 2005
ES-0067

Phoenix Development, Inc.
16108 Ash Way, Suite 201
Lynnwood, Washington 98087

Attention: Ms. Loree Quade

Dear Ms. Quade:

Earth Solutions NW, LLC (ESNW) has prepared this addendum geotechnical report for the proposed residential development. The purpose of this report was to provide additional characterization of the site subsurface conditions and geologic setting. As part of preparing this supplement report, additional subsurface exploration was performed in the vicinity of the proposed stormwater detention pond. This additional exploration consisted of excavating three additional deep test pits within the vicinity of the proposed pond. For continuity, logs for all the test sites on the property and the lab data have been included in this addendum report. A revised site plan illustrating the approximate locations of the test sites and the locations of the recent test sites has also been included.

The following information regarding additional characterization of the site subsurface conditions and geologic setting has also been presented as part of the narrative portion of the Environmental Impact Statement (EIS) prepared for the proposed development.

Additional Site Characterization

Subsurface conditions at the Wood Trails property were explored by excavating forty-five (45) test pits and drilling two borings. In addition to the site specific subsurface exploration, the following references were reviewed to aid in the overall characterization of the site subsurface conditions and geologic setting:

- Geologic Map of the Bothell Quadrangle, Minard 1985;
- Composite geologic map of the Sno-King Area, Booth, D.B., Cox, B.F., Troost, K.G. and Shinel, S.A., University of Washington, Seattle Area Geologic Mapping Project, 2004;
- Chapter 12 Woodinville Comprehensive Plan, Figures A13-1 and A13-3, Critical Areas and Sensitive Geologic Areas in Woodinville;

- Soil Survey of King County Area, Washington, 1973;
- Glacial Geology of the Puget Lowland, Cole, 1967 (unpublished);
- Seattle Landslide Study, Department of Planning and Development.

Geologic Setting

The Puget Sound lowland, within which the Wood Trails site is located, is a region that has been subjected to multiple periods of glaciation. The most recent glaciation of the Puget Sound lowland is known as the Fraser glaciation. The final retreat of glacial ice from the Puget Sound lowland is estimated to have occurred approximately 13,500 years ago. The soil or glacial debris deposits associated with the recent glaciation largely dominate the geologic setting throughout the Puget Sound lowland. Within the period of glaciation, minor changes in climate are thought to have caused a series of retreats and advances of the terminus of the glacier. These periods of fluctuations are known as stades. Much of the depositional environment throughout the Puget Sound lowland resulted from the Vashon stade of the Fraser glaciation, in which the glacial ice is thought to have reached a maximum thickness, and the terminus of the glacial ice reached as far south as Olympia, Washington.

Relatively rapid changes in the depositional environment during the advance and retreat of the glacial ice sheet resulted in a variety of soil textural characteristics and topographic features throughout the Puget Sound lowland. As the glacial ice sheet advanced into the Puget Sound lowland, lake deposits (proglacial lacustrine deposits) formed as natural drainage pathways became blocked by the advancing glacier. These proglacial lacustrine deposits are characterized primarily by silt and clay particles. Streams originating from the advancing glacier deposited coarser sand and gravel sized particles which generally overlie much of the finer grained silt and clay proglacial lacustrine deposits. Within the advancing ice sheet, silt, sand, and gravel particles referred to as till were transported by the ice and subsequently deposited. The till was deposited over much of the fine and coarse grain deposits that originated in advance of the glacial ice sheet. The weight of the advancing ice sheet, which is estimated to have been on the order of 3,000 feet thick at some locations, produced a highly compact condition within the underlying sequences of glacial deposits.

During the final retreat of the glacial ice, relatively rapid melting of the ice produced large amounts of water that transported fine and coarse grain material, depositing these materials in steam deltas and lakes. The retreating ice continued to block the primary drainage path to the north, resulting in the formation of large lakes throughout areas previously occupied by the glacial ice. Following the retreat of the glacial ice, post-glacial processes including stream erosion, stream delta deposits, beach erosion, landslide activity, and other processes have served to expose or cover the sequences of glacial and pre-glacial deposits. Deeply incised stream channels often expose the sequence of glacial deposits. This is also the case along the margins of Puget Sound where beach erosion and the resulting steep bluff areas expose the sequence of glacial deposits.

Due to the complex nature of the glacial and post-glacial processes combined with local variations in terrain and drainage paths, the sequence of glacial and post-glacial deposits within the limits of a relatively small area can be highly varied. Conversely, relatively widespread areas are found to possess very little variation with respect to the predictable sequence of glacial deposits.

Soil Characterization

Irrespective of anticipated variations, or an absence of variation, proper and reasonable characterization of property intended for some form of development should involve the use of geologic maps, surveys, review of pertinent literature and reports, and site specific subsurface exploration. The level of investigation and the extent to which the subsurface is explored may be driven by the type or importance of the intended development. For example, the proper level of investigation for a tunneling project would generally far exceed the level of investigation needed for a typical commercial or residential development.

With respect to the Wood Trails property, forty-five (45) test excavations and two drilled borings were completed to assist in characterizing subsurface conditions. In addition, the above referenced geologic maps, soil survey, sensitive area maps, and literature were reviewed to supplement the subsurface investigation. Soil samples were collected at the test sites, and grain size (sieve) analyses were performed for purposes of classifying the soils in accordance with the Unified Soil Classification System (USCS). Photographs were acquired at several of the test excavation sites to supplement the overall subsurface exploration. Further characterization of the site included a series of aerial photographs that help document surface conditions over the past several decades. The data collected from the test sites, photographs, and laboratory test data are provided in the geotechnical report and this addendum geotechnical report.

The referenced geologic maps of the Bothell area identify Advance Outwash (Qva) deposits throughout the site and surrounding area. These deposits are generally described as relatively well graded sand and gravel deposits that were deposited in streams originating from the advancing glacier. Silt lenses are common throughout the upper regions of the deposit, and localized deposits of Glacial Till (Qvt) may be present in areas mapped as Advance Outwash. Glacial Till (Qvt) deposits are mapped immediately to the east of the property, and to the west of the property, west of 144th Avenue NE. Landslide deposits (Qls) are not identified on the site, or on surrounding properties.

The Soil Survey of King County Area, Washington (1973) characterizes the site soils as Alderwood Gravelly Sandy Loam (6 to 15 percent slopes) and Alderwood Gravelly Sandy Loam (15 to 30 percent slopes). Alderwood series soils formed in glacial deposits throughout upland areas. The typical soil profile is described as dark brown to brown gravelly sandy loam to a depth of approximately two feet. Underlying the upper statum, grayish brown to gray weakly to strongly consolidated (or cemented) glacial till is described to depths extending to approximately five feet or deeper.

With respect to the Alderwood Gravelly Sandy Loam (6 to 15 percent slopes) that is mapped throughout much of the east upaland areas of the site, runoff is described as slow to medium, and the erosion hazard is described as moderate. With respect to the Alderwood Gravelly Sandy Loam (15 to 30 percent slopes) that is mapped throughout much of the west sloping areas of the site, runoff is described as medium, and the erosion hazard is characterized as severe. The slippage potential is described as moderate. For drainage and runoff anlyses, the King County Surface Water Design Manual assigns Hydrologic Soil Group C to the Alderwood Series soils.

As stated above, a total of forty-five (45) test pits were excavated throughout the Wood Trails site for purposes of characterizing the soil conditions. In addition, two borings were drilled to supplement the test pit data, and to assist in developing a cross section through the proposed detention pond area. The test pit and boring logs are provided in this addendum geotechnical report. Sieve analyses were performed on samples collected at the test sites. The sieve analysis data are also included in this addendum geotechnical report.

In accordance with the Unified Soil Classification System (USCS), the majority of the soils encountered throughout the upland areas of the site are classified as silty sand with gravel. With respect to the upland areas of the site, the subsurface data collected at the test sites combined with the sieve analysis data and the observed soil profile strongly support the conclusion that Alderwood series soils dominate the upland areas of the site. The data collected at the test sites, including test logs and sieve analysis data strongly support the conclusion that outwash soils do not dominate the upland areas of the site.

As previously described, geologic mapping of the site identifies Advance Outwash Sand (Qva) soils throughout the majority of the site, and Glacial Till (Qvt) deposits immediately to the east of the site. Areas of the Advance Outwash Sand (Qva), however, may be overlain by Glacial Till (Qvt) deposits within the mapped area, and may be found to grade upward into Glacial Till (Qvt) deposits. As described above, the majority of the soils throughout the upland areas of the site classify as silty sand with gravel (SM) in accordance with the Unified Soil Classification System (USCS). The silty sand with gravel (SM) soils encountered at the test sites located throughout the upland areas of the site are generally more consistent with Glacial Till (Qvt) deposits. The upland soil deposits may be representative of the lower margins of the Glacial Till (Qvt) deposits mapped immediately to the east of the site. The transition between the Glacial Till (Qvt) and Advance Outwash Sand (Qva) glacial sequences, however, are not necessarily abrupt. Therefore, the upland soil deposits may be associated with the transition between the two glacial sequences, or possibly associated with the upper limits of the Advance Outwash Sand (Qva) deposit.

Throughout the lower regions of the Wood Trails site, in the vicinity of the proposed storm water detention pond, loose to medium dense silty sand with gravel mantling dense to very dense sandy silt and sandy silt with gravel was predominantly encountered at the test sites (USCS Designations SM and ML, respectively). The silty sand with gravel deposit typically extends to a depth of six to eight feet before transitioning into the underlying dense to very dense sandy silt and sandy silt with gravel. The sandy silt was generally massive and contained varying amounts of gravel and occasional cobbles. At one of the test sites, a two foot by four foot boulder (erratic) was encountered at a depth of approximately eight feet.

The referenced geologic maps identify Advance Outwash Sand (Qva) deposits throughout the lower regions of the Wood Trails site. A relatively narrow band of the Lawton Clay (Qvlc) deposit is identified to the north and west of the detention pond area. The dense to very dense and massive sandy silt deposit encountered at the test sites may be associated with the Lawton Clay (Qvlc) deposit mapped near the site. The sandy silt may also be associated with the lower regions of the Advance Outwash Sand (Qva) deposit where transition between the upper Advance Outwash Sand (Qva) and the lower Lawton Clay (Qvlc) sequences occurs. With respect to the Soil Survey of King County, the area of the proposed detention pond is mapped as Alderwood Gravelly Sandy Loam (15 to 30 percent slopes). The upper deposits of brown to light brown silty sand with gravel mantling the lower dense to very dense sandy silt are consistent with Alderwood soils. The Soil Survey of King County defines Alderwood soils as consisting of a moderately well drained soil over a weakly to strongly consolidated substratum. The silty sand with gravel soil throughout the detention pond area meets this definition.

Groundwater seepage was occasionally observed at some of the test sites. However, in general heavy groundwater seepage conditions were not encountered at the site. Where a relatively deep excavation is planned for the proposed storm water detention pond along the westerly margins of the property, a twenty (20) foot test pit (TP-201) was excavated for purposes of assessing groundwater seepage conditions. Due to very dense soil conditions encountered in the vicinity of the proposed storm water detention pond, specialized "tiger teeth" were fitted to the excavator bucket to aid in the productivity of the excavation. Groundwater seepage was encountered in the excavation at a depth of approximately twenty (20) feet. Groundwater seepage was also observed at a depth of four to six feet, and was associated with a seasonal perched groundwater seepage condition.

Following the initial site excavations, three additional test pits were excavated in the detention pond area to supplement the previously acquired data (ESNW Test Pits TP-1, TP-2, and TP-3). The test pits were excavated to depths of twenty (20) feet, and were advanced below the proposed bottom of pond elevation. Consistent with prior excavations, dense to very dense sandy silt and sandy silt with gravel soils were encountered below a relatively shallow deposit of silty sand with gravel. Perched groundwater seepage was encountered at a depth of approximately six to eight feet, at or near the contact between the upper silty sand and underlying silt deposits. Throughout the remainder of the excavation within the sandy silt deposit, persistent or chronic groundwater seepage conditions were not encountered.

As stated above, heavy groundwater seepage conditions were not encountered. However, where groundwater seepage is encountered, we anticipate the rate of seepage to be light to moderate, depending on the time of year the excavation is completed. Additionally, groundwater seepage is anticipated to be associated with relatively shallow perched zones. Based on the subsurface conditions encountered at the exploration sites, we do not anticipate groundwater seepage will create a stability problem in the excavations.

What are commonly referred to as "clean" sand deposits were not predominantly encountered at the test sites. Sieve analysis data included in the geotechnical report and this addendum geotechnical report indicate the sand deposits encountered at the test sites contain fines of 16 percent or greater, with the majority of the samples tested containing greater than 20 percent fines. Localized sand deposits likely exist throughout the site and surrounding areas. However, based on our subsurface exploration and review, the Wood Trails site is not immediately underlain by an extensive and widespread deposit of "clean" sand that is susceptible to large scale movements.

Detention Pond Stability

Permanent slopes for the proposed storm water detention pond will be sloped 2H:1V (Horizontal:Vertical). The dense to very dense soil conditions encountered at the test pit and boring locations support a conclusion that the permanent slopes will exhibit good stability. Erosion susceptibility along the graded slopes will be elevated. Measures to mitigate erosion along the newly constructed pond slopes include installation of erosion control mats, hydroseeding, or other appropriate permanent vegetation. With respect to long term stability of the pond slopes, and in particular the wetted surfaces of the pond, stability and soil strength is expected to be good, provided appropriate methods for establishing vegetation and other appropriate erosion control measures are utilized.

Storm Water Dispersion

Storm water generated on individual building lots throughout the southerly pod of the development will be accommodated with the use of dispersion trenches. Dispersion trenches are intended to accommodate a portion of the stormwater runoff through infiltration during rain events of limited duration. During extended periods of rainfall, runoff is discharged from the dispersion trenches over a level spreader which uniformly distributes the flow into a vegetated flow path, and prevents a concentrated discharge of the flow. Storm water discharged over the level spreader will infiltrate into the upper zones of the Alderwood soil deposits along the vegetated flow path. Provided the existing native vegetation is preserved along the proposed flow path, stability of the adjacent slope areas is not anticipated to be adversely impacted, and the erosion hazard is not anticipated to be elevated. The change in groundwater paths is also not anticipated to be significantly altered by the use of the proposed dispersion systems. Based on existing topography, the general trend of surface water runoff and groundwater flow is to the west and into the ravine areas. The dispersion systems will effectively reintroduce surface water along a path similar to the flow path that currently exists.

We trust the information provided in this addendum geotechnical report meets your current needs. If you have any questions or if additional information is needed, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC

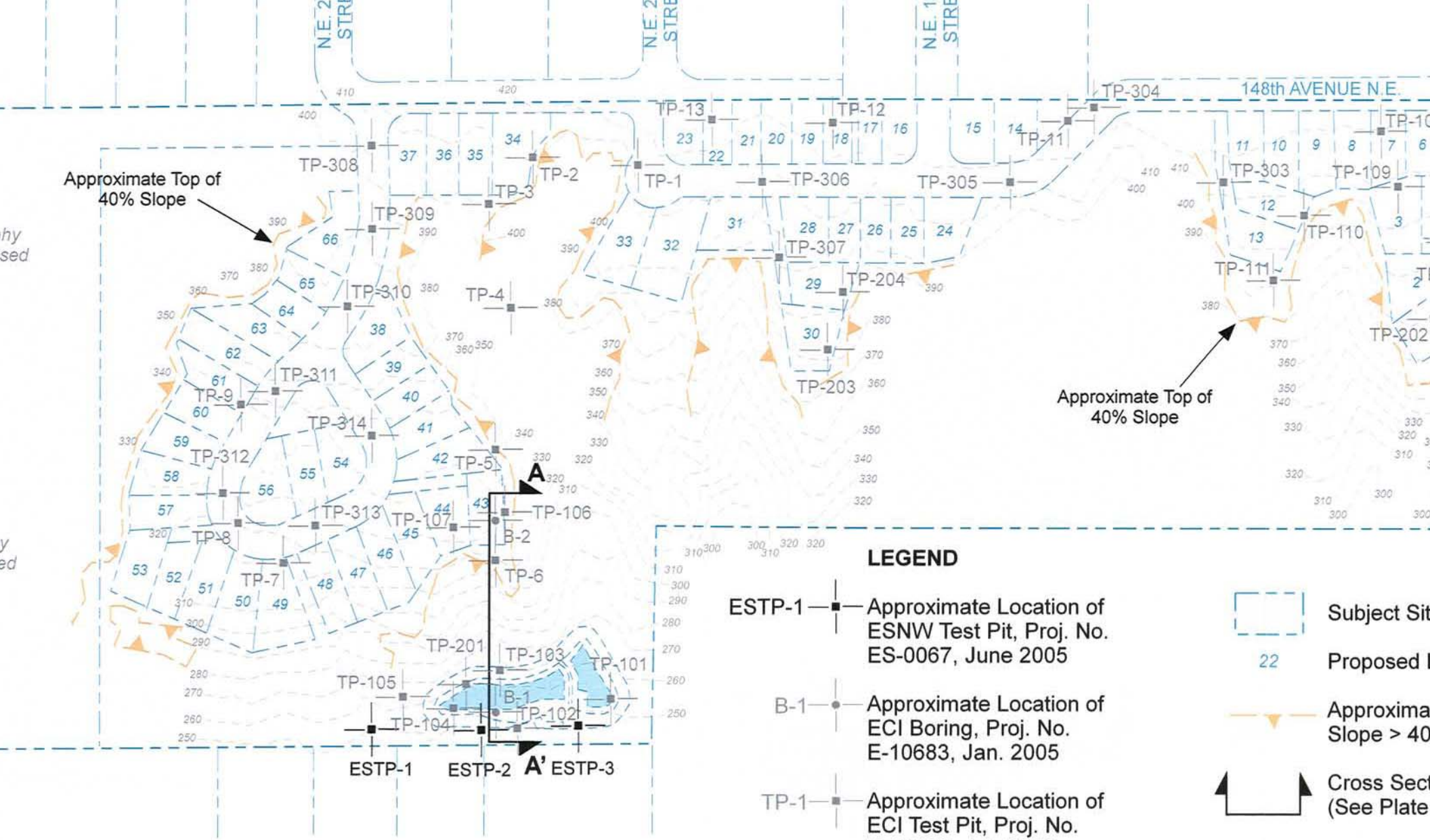
9/27/05

EXPIRES 7/29/2006

Raymond A. Coglas, P.E.
Principal

Attachments:
Plate 1 - Boring and Test Pit Location Plan (6/28/05)
Plate 2 – Cross Section A-A' (6/29/05)
Appendix A – Boring and Test Pit Logs
Appendix B – Laboratory Test Data
Appendix C - Photographs

cc: Huckell/Weinman Associates, Inc.
Mr. Chris Lawson



LEGEND

ESTP-1 — Approximate Location of ESNW Test Pit, Proj. No. ES-0067, June 2005

B-1 — Approximate Location of ECI Boring, Proj. No. E-10683, Jan. 2005

TP-1 — Approximate Location of ECI Test Pit, Proj. No. E-10683, July 2003

TP-101 — Approximate Location of ECI Test Pit, Proj. No. E-10683, Feb. 2004

TP-201 — Approximate Location of ECI Test Pit, Proj. No. E-10683, April 2004

TP-301 — Approximate Location of

Subject Sit

22 Proposed

Approxima Slope > 40

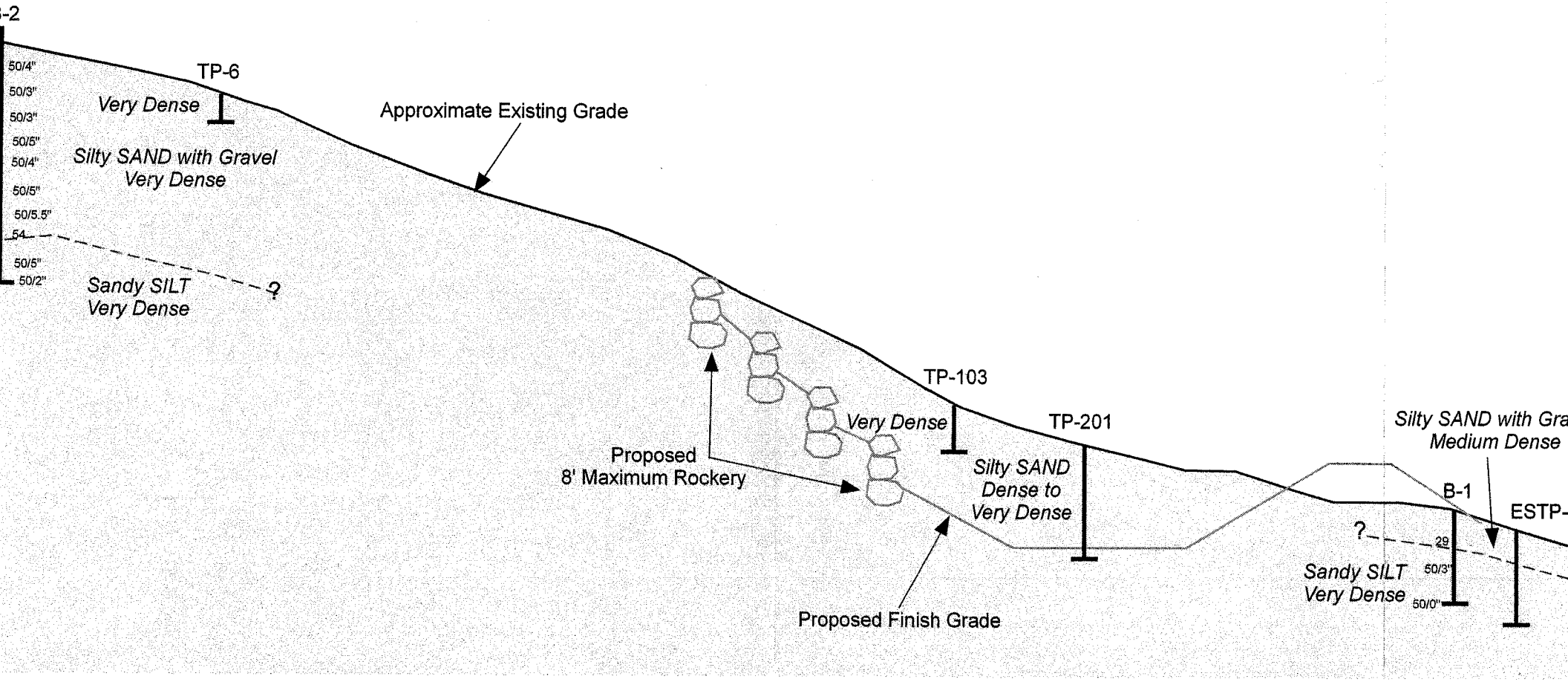
Cross Sect (See Plate

NORTH

0 100 200

NOTE: This plate may contain areas of col responsible for any subsequent misinterpre resulting from black & white reproductions

NOTE: The graphics shown on this plate a design purposes or precise scale measure illustrate the approximate test locations rel locations of existing and/or proposed site f illustrated is largely based on data provide



0 15 30 60

cale 1"=30'

Scale in Feet

0 15 30 60

NOTE: The stratification lines shown on this cross section represent the approximate boundaries between soil types. The actual transitions may be either more gradual or more severe. They are based on our interpretation of the subsurface conditions encountered at the individual boring and test pit locations and our judgement and experience. ESNW cannot be responsible for the interpretation of

NOTE: This plate may contain areas of color. ESNW can
responsible for any subsequent misinterpretation of the i
resulting from black & white reproductions of this plate.

APPENDIX A

BORING AND TEST PIT LOGS

ES-0067

Earth Solutions NW LLC

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

DUAL SYMBOLS are used to indicate borderline soil classifications.

The discussion in the text of this report is necessary for a proper understanding of the nature of the material presented in the attached logs.

Earth Solutions NW, LLC
2603 151st Pl. NE
Redmond, WA 98052
Telephone: 4252843300
Fax: 4252842855

TEST PIT NUMBER TP-1ESNW

CLIENT Phoenix Development
PROJECT NAME Wood Trails
PROJECT NUMBER 0067
PROJECT LOCATION Woodinville, Washington
DATE STARTED 6/14/05 **COMPLETED** 6/14/05
GROUND ELEVATION 250' **TEST PIT SIZE**
EXCAVATION CONTRACTOR NW Excavating
GROUND WATER LEVELS:
EXCAVATION METHOD
AT TIME OF EXCAVATION ---
LOGGED BY SEP **CHECKED BY** RAC
AT END OF EXCAVATION ---
NOTES Depth of Topsoil & Sod 1' - 2': forest duff, maple trees, alders & douglas firs **AFTER EXCAVATION** ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				Brown silty SAND with gravel, loose to medium dense, moist
		SM		-light seepage
5				-erratic 2' by 3' andesite
				9.0
				Brown gray silty SAND with gravel, medium to dense, moist, mottled
10		SM		-very dense
				12.0
				Gray sandy SILT, dense, moist
15		ML		-increase in moisture
				-additional gravel
				-occasional cobbles
				Test pit terminated at 20.0 feet below existing grade. Light groundwater seepage encountered at 6.0 feet during excavation.
20				20.0

Earth Solutions NW, LLC
2603 151st Pl. NE
Redmond, WA 98052
Telephone: 4252843300
Fax: 4252842855

TEST PIT NUMBER TP-2ESNW

CLIENT Phoenix Development
PROJECT NAME Wood Trails
PROJECT NUMBER 0067
PROJECT LOCATION Woodinville, Washington
DATE STARTED 6/14/05 **COMPLETED** 6/14/05
GROUND ELEVATION 250' **TEST PIT SIZE**
EXCAVATION CONTRACTOR NW Excavating
GROUND WATER LEVELS:
EXCAVATION METHOD
AT TIME OF EXCAVATION ---
LOGGED BY SEP **CHECKED BY** RAC
AT END OF EXCAVATION ---
NOTES Depth of Topsoil & Sod 1' - 2.5': blackberry bushes
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0		SM		Brown gray silty SAND with gravel, loose, wet
5				-seepage at 6' - 8'
				7.0
		ML		Gray sandy SILT with gravel, dense, moist
10				-dense to very dense
15				
20				Test pit terminated at 20.0 feet below existing grade. Groundwater seepage encountered at 6.0 to 8.0 feet during excavation.
				20.0

GENERAL BH / TP / WELL 0067.GPJ GINT US.GDT 8/1/05

Earth Solutions NW, LLC
2603 151st Pl. NE
Redmond, WA 98052
Telephone: 4252843300
Fax: 4252842855

TEST PIT NUMBER TP-3ESNW

CLIENT Phoenix Development **PROJECT NAME** Wood Trails

PROJECT NUMBER 0067 **PROJECT LOCATION** Woodinville, Washington

DATE STARTED 6/14/05 **COMPLETED** 6/14/05 **GROUND ELEVATION** 250' **TEST PIT SIZE**

EXCAVATION CONTRACTOR NW Excavating **GROUND WATER LEVELS:**

EXCAVATION METHOD **AT TIME OF EXCAVATION** ---

LOGGED BY SEP **CHECKED BY** RAC **AT END OF EXCAVATION** ---

NOTES Depth of Topsoil & Sod 6": forest duff, maple trees, alder & douglas firs **AFTER EXCAVATION** ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0		SM		Brown silty SAND with gravel, loose, wet
				-seepage at 3.5'
5			5.0	
		ML		Gray sandy SILT with gravel, dense, moist
10				-continued dense
15				
20			20.0	Test pit terminated at 20.0 feet below existing grade. Groundwater seepage encountered at 3.5 feet during excavation.

Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	ELW	9/2/04	TP-301		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			394'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": blackberry bushes
					SM	Reddish brown silty fine SAND, loose, moist
			1			
			2			-trace gravel
	12.7					
			3			-becomes medium dense, gray
			4			-becomes dense
	11.0					
			5			-46.8% fines
			6			-becomes very dense, refusal
			7			
	10.4					Test pit terminated at 7.5 feet below existing grade. No groundwater encountered during excavation.

Earth Consultants Inc.
Geotechnical Engineers, Geologists & Environmental Scientists

Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by engineering tests, analysis and judgment. They are not necessarily representative of other times and locations. We cannot accept responsibility for the use or interpretation by others of information presented on this log.

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	ELW	9/2/04	TP-302		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			402'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 2": grass
	12.2				SM	Reddish brown silty fine SAND, loose, moist, contains gravel
			1		SM	Gray silty fine SAND with gravel, loose to medium dense, moist
			2			
			3			-iron oxide staining -lightly cemented
	8.7		4			-becomes dense, well cemented -reduced gravel
			5			
			6			
			7			-becomes very dense - refusal
	8.3		8			-32.9% fines
						Test pit terminated at 8.5 feet below existing grade. No groundwater encountered during excavation.

Earth Consultants Inc.
Geotechnical Engineers, Geologists & Environmental Scientists

Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by engineering tests, analysis and judgment. They are not necessarily representative of other times and locations. We cannot accept responsibility for the use or interpretation by others of information presented on this log.

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: ELW	Date: 9/2/04	Test Pit No.: TP-303
Excavation Contactor: NW Excavating			Ground Surface Elevation: 417'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": ferns
			1		SM	Reddish brown silty fine SAND with gravel, loose, moist -contains roots -becomes tan, lightly cemented
	6.2		2			-iron oxide staining -becomes dense, well cemented, light gray -iron oxide staining
	8.6		3			-becomes gray, very dense - refusal
			4			-decrease in gravel
			5		SM	Gray silty fine SAND, very dense, moist
	12.2		6			-47.7% fines
			7			Test pit terminated at 8.5 feet below existing grade. No groundwater encountered during excavation.
			8			

Earth Consultants Inc.
Geotechnical Engineers, Geologists & Environmental Scientists

Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by engineering tests, analysis and judgment. They are not necessarily representative of other times and locations. We cannot accept responsibility for the use or interpretation by others of information presented on this log.

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: ELW	Date: 9/2/04	Test Pit No.: TP-304
Excavation Contactor: NW Excavating			Ground Surface Elevation: 425'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": blackberry bushes, ferns
	9.1		1		SM	Reddish brown silty fine SAND with gravel, loose, moist
			2			-becomes tan, loose to medium dense
			3			-lightly cemented, medium dense -iron oxide staining
			4			-becomes gray, dense
	8.8		5			-reduced gravel
			6			
			7			-increase in moisture
	13.1		8		SM	Gray silty fine SAND, dense, moist to wet -trace gravel -44.8% fines
			9			
	14.5		10			
						Test pit terminated at 10.5 feet below existing grade. No ground water encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: ELW	Date: 9/2/04	Test Pit No.: TP-305
Excavation Contactor: NW Excavating			Ground Surface Elevation: 416'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 4": ferns
	14.5		1	SM	Brown silty fine SAND, loose, moist
			2		-trace gravel
	10.7		3		-becomes tan, loose to medium dense
			4		-iron oxide staining
			5		-becomes gray, dense, well cemented
			6		-becomes very dense
			7		
	10.0		8		-42.8% fines
					Test pit terminated at 8.5 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	ELW	9/2/04	TP-306		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			409'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 4": ferns
			1		SM	Reddish brown silty fine SAND with gravel, loose, moist
	11.2		2			-becomes tan, loose to medium dense
			3			-becomes medium dense
	6.3		4			-iron oxide staining, lightly cemented
			5			-becomes gray, very dense, well cemented
			6			-fine to medium grained sand -contains gravel bed with iron oxide staining
			7			-increase in moisture
			8		SM	Gray silty fine SAND, very dense, moist to wet
	11.2		9			-trace gravel
			10			-contains thin sand and silt beds
	10.7					-47.5% fines
						Test pit terminated at 10.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: ELW	Date: 9/2/04	Test Pit No.: TP-307
Excavation Contactor: NW Excavating			Ground Surface Elevation: 405'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 4": ferns
	15.0		1	SM	Reddish brown silty fine SAND with gravel, loose, moist
			2		-becomes tan, loose to medium dense
	7.4		3		
			4		-iron oxide staining
	10.1			SM	Gray silty fine SAND, dense, moist
			5		-trace gravel, well cemented
			6		-becomes very dense - refusal
			7		
	11.1		8		-49.0% fines
					Test pit terminated at 8.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: ELW	Date: 9/2/04	Test Pit No.: TP-308
Excavation Contactor: NW Excavating			Ground Surface Elevation: 414'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": ferns
			1		SM	Brown silty fine SAND with gravel, loose, moist
			2			-becomes tan, loose to medium dense
	6.4		3			-iron oxide staining
			4			-becomes dense, well cemented
	6.8		5		SM	Gray silty fine SAND, very dense, moist
			6			-refusal
			7			
	12.8		8			-47.7% fines
						Test pit terminated at 8.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	ELW	9/2/04	TP-309		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			399'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": ferns
	15.0		1		SM	Brown silty fine SAND with gravel, loose, moist
			2			-becomes tan, medium dense, lightly cemented
			3			
			4		ML	Tan sandy SILT, dense, moist
	5.8		5			-iron oxide staining, contains gravel
			6			
			7		ML	Gray SILT, dense, moist
	22.8		8			-contains thin sand and fine gravel beds
			9			
	12.0		10		ML	Gray sandy SILT, dense, moist to wet, contains sand and silt interbeds, fine gravel
			11		GM	Gray silty GRAVEL with sand, dense, wet
	6.8		12			-light caving
			13			-light seepage at 13'
	8.2		14			Test pit terminated at 14.0 feet below existing grade. Groundwater seepage encountered at 13.0 feet during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: ELW	Date: 9/2/04	Test Pit No.: TP-310
Excavation Contactor: NW Excavating			Ground Surface Elevation: 383'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": ferns
					SM	Brown silty fine SAND with gravel, loose to medium dense, moist
	17.6		1			
			2			-iron oxide staining -becomes tan
			3			-becomes medium dense
	5.4		4			-becomes dense
			5			
			6			-becomes light gray, lightly cemented
	3.2					-contains thin silt beds, reduced gravel
			7		ML	Gray sandy SILT, very dense, moist
			8			-well cemented - refusal
	11.7		9			-51.0% fines
						Test pit terminated at 9.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: ELW	Date: 9/2/04	Test Pit No.: TP-311
Excavation Contactor: NW Excavating			Ground Surface Elevation: 367'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": ferns
			1		SM	Reddish brown silty fine SAND with gravel, loose, moist
	12.2		2			
	7.2		3			-becomes tan, medium dense, lightly cemented -iron oxide staining
			4			-becomes light gray, dense, well cemented
			5			
			6		ML	Tan SILT with sand, dense, moist
	23.8		7			
			8			
			9			
			10			
			11			
			12			
			13		SM	Tan silty SAND, dense, moist
			14			-contains interbedded silt and sand
	13.7		15		ML	Tan SILT with sand, dense, moist
	17.9		16			
	8.3		17		SP-SM	Tan poorly graded SAND with silt, dense, moist, contains thin silt beds Test pit terminated at 17.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	ELW	9/2/04	TP-312		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			342'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 4": ferns
	13.2		1		SM	Brown silty fine SAND with gravel, loose, moist -becomes tan, loose to medium dense
			2			
			3		ML	Tan sandy SILT, dense, moist -iron oxide staining
	6.8		4			
			5			
			6			
			7			
	3.4		8		GP-GM	Brown poorly graded GRAVEL with sand and silt, dense, moist -iron oxide staining
			9			
	7.7		10		ML	Tan sandy SILT, dense, moist
	24.1		11		ML	Olive SILT, dense, moist to wet -iron oxide staining, thinly bedded
	26.0		12		CL	Blue gray fat CLAY, very stiff, moist LL=52 PL=25 PI=27
			13			
			14			
	28.5		15			-contains thin beds of fine sand
						Test pit terminated at 15.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: ELW	Date: 9/2/04	Test Pit No.: TP-313
Excavation Contactor: NW Excavating			Ground Surface Elevation: 337'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": small mixed brush
	12.9		1		SM	Reddish brown silty fine SAND with gravel, loose, moist
			2			-becomes tan
			3			-becomes medium dense, lightly cemented
			4			-becomes light gray, dense, well cemented
	6.9		5			
			6			-becomes very dense - refusal
			7			
			8			-increase in moisture
			9			
			10			-increase in gravel
	7.8					-32.5% fines
						Test pit terminated at 10.5 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	ELW	9/2/04	TP-314		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			359'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Sod 6": ferns
					SM	Reddish brown silty fine SAND, loose, moist
	12.0		1			-contains gravel
			2			-becomes tan, loose to medium dense
			3			-trace gravel -reduced fines
	4.0		4			-1" sand bed
			5			
			6			-becomes dense
	8.1		7			-contains thin sand and silt beds
			8			-reduced fines
			9			-1" interbeds of silt, fine sand and medium sand
	22.6		10		ML	Tan sandy SILT, dense, moist
						Test pit terminated at 10.5 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Sept. 2004	Checked RAC	Date 9/8/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 2
Job No. 10683	Logged by: RAC	Date: 4/6/04	Test Pit No.: TP-201
Excavation Contactor: NW Excavating			Ground Surface Elevation: 257'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"- 8"
			1	SM	Brown silty fine to medium SAND with gravel, medium dense, wet
			2		
			3		
			4		-moderately to heavy seepage zone at 4'- 6'
			5		
			6	SM	Becomes unweathered TILL, dense to very dense, moist
			7		
			8		
			9		-very dense, blue gray
			10		
			11		
			12		
			13		
			14		
			15		
			16		
			17		
			18		
			19		-increasing fine sand, possible seepage, medium dense to dense, moist to wet

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name:				Sheet	of
Wood Trails				2	2
Job No.	Logged by:	Date:	Test Pit No.:		
10683	RAC	4/6/04	TP-201		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			257'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	
			21		SM	Gray fine SAND, medium dense to dense, moist to wet
			22			Test pit terminated at 22.0 feet below existing grade. Groundwater seepage encountered at 4.0 - 6.0 feet during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: RAC	Date: 4/6/04	Test Pit No.: TP-202
Excavation Contactor: NW Excavating			Ground Surface Elevation: 376'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"- 8"
			1		SM	Brown silty fine to medium SAND with gravel, loose to medium dense, moist
			2			
			3			
			4			-becomes dense, cemented till
			5			-very dense
			6			Test pit terminated at 6.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: RAC	Date: 4/6/04	Test Pit No.: TP-203
Excavation Contactor: NW Excavating			Ground Surface Elevation: 382'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 8"
			1		SM	Brown silty fine to medium SAND with gravel, loose, moist to wet
			2			-becomes medium dense
			3			
			4			-becomes gray, cemented till
			5			
			6			
						Test pit terminated at 6.5 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: RAC	Date: 4/6/04	Test Pit No.: TP-204
Excavation Contactor: NW Excavating			Ground Surface Elevation: 382'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"- 8"
			1 2 3 4 5 6	SM	Brown silty fine to medium SAND with gravel, loose to medium dense, moist -becomes dense, cemented till, gray -very dense
					Test pit terminated at 6.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: STS	Date: 2/16/04	Test Pit No.: TP-101
Excavation Contactor: NW Excavating			Ground Surface Elevation: 253'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 9"
			1	ML	Brown SILT with sand, dense, moist
			2		-iron oxide staining -contains gravel
			3		-becomes very dense
			4		-74.6% fines
	16.4		5		
			6		
			7		-trace polished cobbles
	14.3		8		-increase in sand
			9		-becomes gray
	12.5		10		-55.6% fines
					Test pit terminated at 10.5 feet below existing grade. No groundwater encountered during excavation. NOTES: Test pits excavated by NW Excavating using a CASE 901B track-hoe. Test pit elevations based on topographic data on Site Plan provided by the Client.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: STS	Date: 2/16/04	Test Pit No.: TP-102
Excavation Contactor: NW Excavating			Ground Surface Elevation: 248'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"
			1	SM	Brown silty SAND, medium dense, moist
			2		-contains gravel and trace cobbles
			3		-root mass to 2.5'
			4		-becomes light brown and very dense
			5		-iron oxide staining
	14.3		6		
			7	ML	Grades to sandy SILT, medium dense, moist
			8		
	14.5		9		-60.2% fines
			10		
	17.2		11		Test pit terminated at 11.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: STS	Date: 2/16/04	Test Pit No.: TP-103
Excavation Contactor: NW Excavating			Ground Surface Elevation: 265'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 4"
			1		ML	Brown sandy SILT, medium dense, moist
	19.8		2			-iron oxide staining -contains gravel -52.3% fines
			3			-becomes light brown, very dense
			4			
			5			
	15.3		6			
			7			
	17.2		8			
						Test pit terminated at 8.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: STS	Date: 2/16/04	Test Pit No.: TP-104
Excavation Contactor: NW Excavating			Ground Surface Elevation: 255'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"
			1	SM	Brown silty SAND, medium dense, moist
			2		-becomes light brown
			3		-iron oxide staining
			4		-caving due to seepage
	21.1		5		-41.6% fines
			6		
			7		-becomes dense
			8		-increase in gravel, trace cobbles and boulders
	9.9		9		-becomes gray and very dense
					Test pit terminated at 9.5 feet below existing grade. Groundwater seepage encountered at 4.0 feet during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: STS	Date: 2/16/04	Test Pit No.: TP-105
Excavation Contactor: NW Excavating			Ground Surface Elevation: 264'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"
			1		ML	Light brown sandy SILT, medium dense, moist
			2			-iron oxide staining, contains gravel
	16.1		3			
			4			-becomes dense
			5			
	14.4		6			-57.8% fines
			7			
			8			
	15.9		9			
			10			Test pit terminated at 10.0 feet below existing grade. No groundwater encountered during excavating.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: STS	Date: 2/16/04	Test Pit No.: TP-106
Excavation Contactor: NW Excavating			Ground Surface Elevation: 344'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"
			1		SM	Brown silty SAND, medium dense, moist
			2			-iron oxide staining -contains gravel
	16.1		3			-becomes dense
	12.8		4			
			5			Test pit terminated at 5.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: STS	Date: 2/16/04	Test Pit No.: TP-107
Excavation Contactor: NW Excavating			Ground Surface Elevation: 344'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"
			1		SM	Brown silty SAND, medium dense, moist
			2			-iron oxide staining -contains gravel
	16.6		3			-becomes light brown and dense
	15.3		4			
			5			Test pit terminated at 5.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	STS	2/16/04	TP-108		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			394'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"
			1	SM	Brown silty SAND with gravel, medium dense, moist
			2		-iron oxide staining -trace cobbles
	19.1		3		-becomes dense, 23.5% fines -increase in moisture
	23.7		4		-increase in gravel and cobbles
			5		
					Test pit terminated at 5.5 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	STS	2/16/04	TP-109		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			408'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"
	17.5		1 2 3 4 5		SM	Brown silty SAND, loose to medium dense, moist -iron oxide staining -contains gravel and trace cobbles -becomes light brown and dense -24.0% fines
						Test pit terminated at 5.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: STS	Date: 2/16/04	Test Pit No.: TP-110
Excavation Contactor: NW Excavating			Ground Surface Elevation: 403'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"
	16.6		1 2 3 4 5		SM	Brown silty SAND, loose to medium dense, moist -iron oxide staining -contains gravel and trace cobbles -becomes light brown -becomes dense -27.5% fines
						Test pit terminated at 5.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: STS	Date: 2/16/04	Test Pit No.: TP-111
Excavation Contactor: NW Excavating			Ground Surface Elevation: 391'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Topsoil & Duff 6"
	14.8		1 2 3 4 5		SM	Brown silty SAND, loose to medium dense, moist -iron oxide staining -contains gravel and trace cobbles -becomes light brown, 23.2% fines -becomes dense Test pit terminated at 5.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	SSR	7/11/03	TP-1		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			400'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
			1		SM	Red brown silty fine to medium SAND, loose, moist
	13.2		2			
			3			-brown -medium dense
	16.3		4			
			5			
			6			-with gravel -dense
			7			
			8			-silt / clay nodules -43.5% fines
	16.4		9			
	18.9					Test pit terminated at 9.0 feet below existing grade. No groundwater encountered during excavation. NOTES: Test pits excavated using a CASE 9010B track-hoe by NW Excavating. Test pit elevations based on topographic data on a Preliminary Site Plan provided by the Client.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: SSR	Date: 7/11/03	Test Pit No.: TP-2
Excavation Contactor: NW Excavating			Ground Surface Elevation: 405'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6": recently graded
			1		SM	Brown silty fine to medium SAND, loose, moist
	8.8		2			-medium dense
			3			
	12.9		4			-dense, slightly cemented
			5			-very dense
			6			-refusal on very dense soil at 6'
	10.8					Test pit terminated at 6.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: SSR	Date: 7/11/03	Test Pit No.: TP-3
Excavation Contactor: NW Excavating			Ground Surface Elevation: 390'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
			1		SM	Brown silty fine to medium SAND, loose, moist
			2			-medium dense
	8.8		3			-with gravel
			4			
			5			-very dense
			6			
			7			-refusal on very dense soil at 7'
	10.1					Test pit terminated at 7.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: SSR	Date: 7/11/03	Test Pit No.: TP-4
Excavation Contactor: NW Excavating			Ground Surface Elevation: 340'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 8"
			1		SM	Brown silty fine to medium SAND, loose, moist
			2			
			3			
			4		SP-SM	Brown poorly graded fine to medium SAND with silt, medium dense, moist
	11.6		5			
			6			
			7			-with gravel
			8		SM	Brown silty SAND, medium dense, moist
			9			
	16.6		10			-15.7% fines
			11			-moist to wet
	16.2		12			Test pit terminated at 12.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: SSR	Date: 7/11/03	Test Pit No.: TP-5
Excavation Contactor: NW Excavating			Ground Surface Elevation: 355'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 4"
			1		SM	Brown silty fine to medium SAND, medium dense, moist
			2			
			3			-with gravel
	11.4		4			-dense to very dense -slightly cemented
			5			
	12.1		6			-refusal at 6'
						Test pit terminated at 6.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: SSR	Date: 7/11/03	Test Pit No.: TP-6
Excavation Contactor: NW Excavating			Ground Surface Elevation: 330'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
	9.2		1 2 3 4 5		SM	Brown silty SAND with gravel, medium dense, moist -decrease in gravel content -dense -slightly cemented -41.4% fines -refusal at 5'
						Test pit terminated at 5.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name:			Sheet	of
Wood Trails			1	1
Job No. 10683	Logged by: SSR	Date: 7/11/03	Test Pit No.: TP-7	
Excavation Contactor: NW Excavating			Ground Surface Elevation: 325'	
Notes:				

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
			1		SM	Brown silty SAND with gravel, medium dense, moist
			2			
			3			
	7.8		4			-dense
			5			
	8.0		6			-refusal at 6'
						Test pit terminated at 6.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	SSR	7/11/03	TP-8		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			330'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
	8.1		1 2 3 4 5	SM	Brown silty SAND with gravel, medium dense, moist -dense -refusal at 5'
					Test pit terminated at 5.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: SSR	Date: 7/11/03	Test Pit No.: TP-9
Excavation Contactor: NW Excavating			Ground Surface Elevation: 350'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
					SM	Brown silty fine to medium SAND, loose, moist
			1			
			2			-medium dense
			3			
			4			
	8.2					
			5			-dense
			6			
	9.1		7			-refusal at 7'
						Test pit terminated at 7.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
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Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name:				Sheet	of
Wood Trails				1	1
Job No.	Logged by:	Date:	Test Pit No.:		
10683	SSR	7/11/03	TP-10		
Excavation Contactor:			Ground Surface Elevation:		
NW Excavating			415'		
Notes:					

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
			1		SM	Red brown silty fine to medium SAND, loose, moist
			2			
			3			-brown
	10.3		4			-medium dense -36.8% fines
			5			-dense
	14.6		6			Test pit terminated at 6.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
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Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Test Pit Log

Project Name:			Sheet	of
Wood Trails			1	1
Job No.	Logged by:	Date:	Test Pit No.:	
10683	SSR	7/11/03	TP-11	
Excavation Contactor:			Ground Surface Elevation:	
NW Excavating			415'	
Notes:				

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
					SM	Brown silty fine to medium SAND, loose, moist
			1			
			2			-medium dense
			3			
			4			-dense
	10.3		5			-36.1% fines, refusal at 5'
						Test pit terminated at 5.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name:			Sheet	of
Wood Trails			1	1
Job No.	Logged by:	Date:	Test Pit No.:	
10683	SSR	7/11/03	TP-12	
Excavation Contactor:			Ground Surface Elevation:	
NW Excavating			415'	

Notes:

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
			1		SM	Red brown silty fine to medium SAND, loose, moist
			2			-medium dense
			3			-brown
	9.9		4			-dense to very dense
	12.5		5			
			6			-refusal at 6'
						Test pit terminated at 6.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

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TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

Test Pit Log

Project Name: Wood Trails			Sheet 1 of 1
Job No. 10683	Logged by: SSR	Date: 7/11/03	Test Pit No.: TP-13
Excavation Contactor: NW Excavating			Ground Surface Elevation: 420'
Notes:			

General Notes	W (%)	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	Surface Conditions: Depth of Forest Duff 6"
			1		SM	Brown silty fine to medium SAND, loose, moist
			2			-medium dense
			3			
	10.3		4			-44% fines
			5			-very dense
	13.4		6			-refusal at 6'
						Test pit terminated at 6.0 feet below existing grade. No groundwater encountered during excavation.

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Test Pit Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date April 2004	Checked RAC	Date 4/14/04	Plate

TEST PIT LOG 10683.GPJ ECI.GDT 9/9/04

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Boring Log

Project Name: Wood Trails				Sheet 1 of 1
Job No. 10683	Logged by: STS	Start Date: 1/14/05	Completion Date: 1/14/05	Boring No.: B-1
Drilling Contactor: Boretec		Drilling Method: HSA		Sampling Method: SPT
Ground Surface Elevation: ±251'		Hole Completion: ☐ Monitoring Well ☐ Piezometer ☒ Abandoned, sealed with bentonite		

Surface Conditions: Short Grass and Blackberry Brambles

General Notes	W (%)	No. Blows Ft.	Graphic Symbol	Depth Ft. Sample	USCS Symbol	
				1 2 3 4	SM	Brown silty SAND with gravel, medium dense, moist to wet
	21.8	29		5 6 7 8 9	ML	Light brown sandy SILT, medium dense, moist -iron oxide staining -50.0% fines
		50/3"		10 11 12 13 14		-becomes very dense
		50/0"		15		no recovery
						Boring terminated at 15.0 feet below existing grade. Groundwater seepage encountered at 5.0 feet during drilling. Boring backfilled with bentonite.

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Boring Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Jan. 2005	Checked RAC	Date 1/25/05	Plate

BORING LOG 10683.GPJ ECI.GDT 1/25/05

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by engineering tests, analysis and judgment. They are not necessarily representative of other times and locations. We cannot accept responsibility for the use or interpretation by others of information presented on this log.

Boring Log

Project Name: Wood Trails				Sheet 1 of 3
Job No. 10683	Logged by: STS	Start Date: 1/14/05	Completion Date: 1/14/05	Boring No.: B-2
Drilling Contactor: Boretec		Drilling Method: HSA		Sampling Method: SPT
Ground Surface Elevation: ±343'		Hole Completion: ☐ Monitoring Well ☐ Piezometer ☒ Abandoned, sealed with bentonite		

General Notes	W (%)	No. Blows Ft.	Graphic Symbol	Depth Ft. Sample	USCS Symbol	Surface Conditions: Wooded Ridge, Fir and Maple Trees
				1	SM	Light brown silty SAND with gravel, very dense, moist
				2		
				3		
				4		
		50/4"		5		-sampler driven through small diameter root
				6		
				7		
				8		
				9		
		50/3"		10		-becomes gray, 40.6% fines
				11		
				12		
				13		
				14		
		50/3"		15		
				16		
				17		-increase in gravel
				18		
				19		

Earth Consultants Inc.
Geotechnical Engineers, Geologists & Environmental Scientists

Boring Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Jan. 2005	Checked RAC	Date 1/25/05	Plate

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by engineering tests, analysis and judgment. They are not necessarily representative of other times and locations. We cannot accept responsibility for the use or interpretation by others of information presented on this log.

BORING LOG 10683.GPJ ECI.GDT 1/25/05

Boring Log

Project Name: Wood Trails				Sheet 2 of 3
Job No. 10683	Logged by: STS	Start Date: 1/14/05	Completion Date: 1/14/05	Boring No.: B-2
Drilling Contactor: Boretec		Drilling Method: HSA		Sampling Method: SPT
Ground Surface Elevation: ±343'		Hole Completion: ☐ Monitoring Well ☐ Piezometer ☒ Abandoned, sealed with bentonite		

General Notes	W (%)	No. Blows Ft.	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	
	6.0	50/5"		21		SM	Gray silty SAND with gravel, very dense, moist
				22			-29.5% fines
				23			
				24			
		50/4"		25			-increase in sand content
				26			
				27			
				28			
				29			
		50/5"		30			
				31			
				32			
				33			
				34			
		50/5.5"		35			
				36			
				37			
				38			
				39			

Earth Consultants Inc.
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Boring Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Jan. 2005	Checked RAC	Date 1/25/05	Plate

BORING LOG 10683.GPJ EC1.GDT 1/25/05

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by engineering tests, analysis and judgment. They are not necessarily representative of other times and locations. We cannot accept responsibility for the use or interpretation by others of information presented on this log.

Boring Log

Project Name: Wood Trails				Sheet 3 of 3
Job No. 10683	Logged by: STS	Start Date: 1/14/05	Completion Date: 1/14/05	Boring No.: B-2
Drilling Contactor: Boretec		Drilling Method: HSA		Sampling Method: SPT
Ground Surface Elevation: ±343'		Hole Completion: ☐ Monitoring Well ☐ Piezometer ☒ Abandoned, sealed with bentonite		

General Notes	W (%)	No. Blows Ft.	Graphic Symbol	Depth Ft.	Sample	USCS Symbol	
		54		41		ML	Gray SILT, very dense, moist -occasional small gravels
				42			
				43			
				44			
				45			
		50/5"				ML	Grades to sandy SILT with gravel, very dense, moist
				46			
				47			
				48			
		50/2"		49	○		no recovery
							Boring terminated at 49.0 feet below existing grade. Groundwater seepage encountered at 4.0 feet during drilling. Boring backfilled with bentonite.

Earth Consultants Inc.
Geotechnical Engineers, Geologists & Environmental Scientists

Boring Log
Wood Trails
Woodinville, Washington

Proj. No. 10683	Dwn. GLS	Date Jan. 2005	Checked RAC	Date 1/25/05	Plate

Subsurface conditions depicted represent our observations at the time and location of this exploratory hole, modified by engineering tests, analysis and judgment. They are not necessarily representative of other times and locations. We cannot accept responsibility for the use or interpretation by others of information presented on this log.

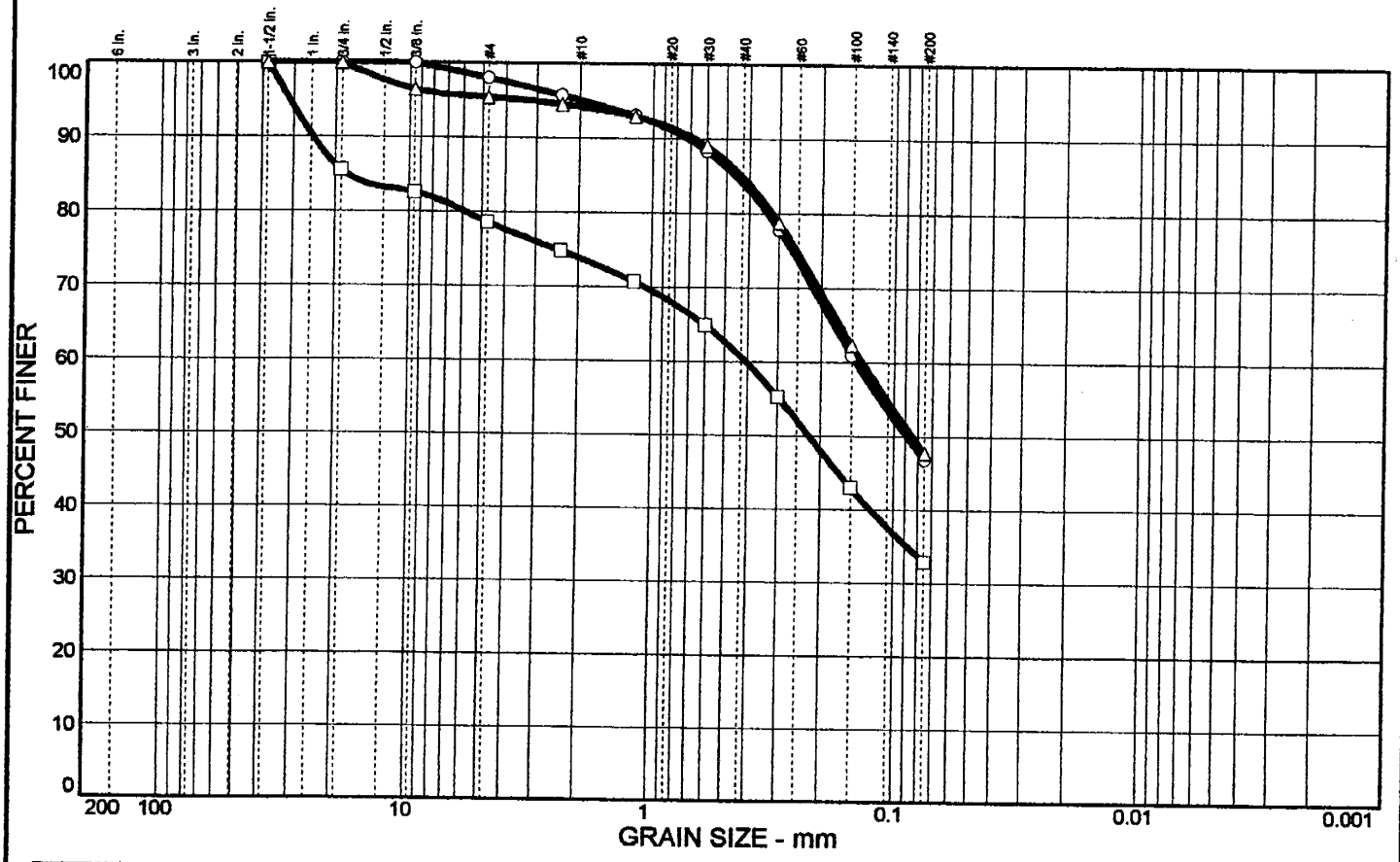
BORING LOG 10683.GPJ ECI.GDT 1/25/05

APPENDIX B

LABORATORY TEST DATA

ES-0067

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		2.0	51.2	46.8		SM			
□		21.4	45.7	32.9		SM			
△		4.6	47.7	47.7		SM			

SIEVE inches size	PERCENT FINER ○	□	△
1.5	100.0	100.0	100.0
3/4	100.0	85.6	100.0
3/8	100.0	82.6	96.4
GRAIN SIZE			
D_{60}	0.144	0.406	0.136
D_{30}			
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	98.0	78.6	95.4
#8	95.7	74.8	94.5
#16	93.0	70.7	92.9
#30	88.3	64.9	89.0
#50	77.7	55.3	78.7
#100	60.9	43.0	62.3
#200	46.8	32.9	47.7

SOIL DESCRIPTION

○ TP-301: 4.5' - SM
Gray silty Sand; 11.0% moisture

□ TP-302: 8.5'- SM
Gray silty Sand with gravel; 8.3% moisture

△ TP-303: 7.5' - SM
Gray silty Sand; 12.2% moisture

REMARKS:

○ Tech: SEP

□ Tech: SEP

△ Tech: SEP

○ Source: Sample No.: TP-301 Elev./Depth: 4.5'

□ Source: Sample No.: TP-302 Elev./Depth: 8.5'

△ Source: Sample No.: TP-303 Elev./Depth: 7.5'

EARTH CONSULTANTS, INC.

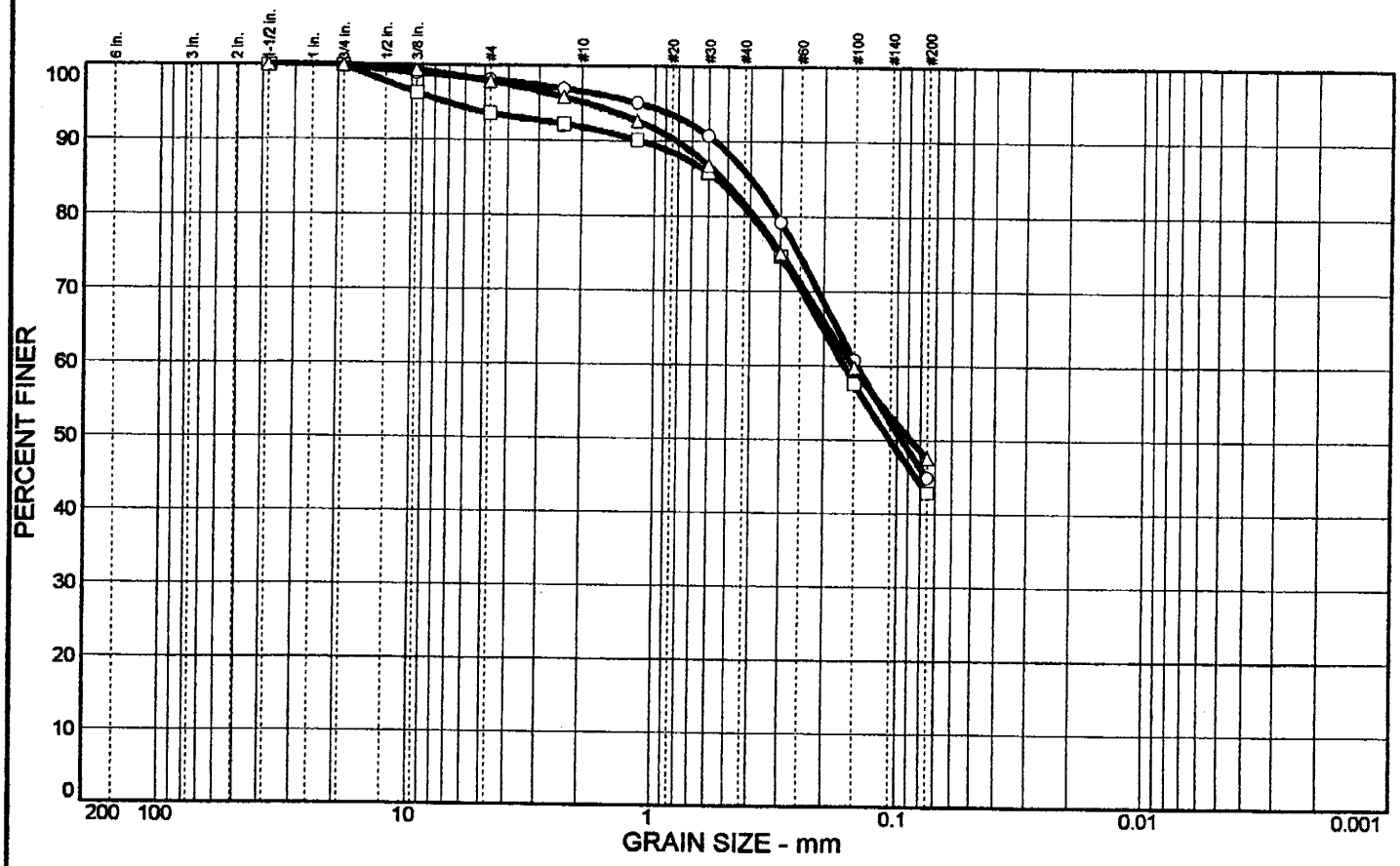
Client:

Project: Wood Trails

Project No.: E-10683

Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		1.9	53.3	44.8		SM			
□		6.4	50.8	42.8		SM			
△		2.1	50.4	47.5		SM			

SIEVE inches size	PERCENT FINER ○	□	△
1.5	100.0	100.0	100.0
3/4	100.0	100.0	100.0
3/8	98.9	96.3	99.3
GRAIN SIZE			
D_{60}	0.146	0.165	0.152
D_{30}			
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	98.1	93.6	97.9
#8	96.9	92.2	95.8
#16	95.1	90.1	92.7
#30	90.7	85.8	86.8
#50	79.2	74.7	75.1
#100	60.7	57.6	59.7
#200	44.8	42.8	47.5

SOIL DESCRIPTION

○ TP-304: 7.5' - SM
Gray silty Sand; 13.1% moisture

□ TP-305: 8.5' - SM
Gray silty Sand; 10.0% moisture

△ TP-306: 10.0' - SM
Gray silty Sand; 10.7% moisture

REMARKS:

○ Tech: SEP

□ Tech: SEP

△ Tech: SEP

○ Source: Sample No.: TP-304 Elev./Depth: 7.5'

□ Source: Sample No.: TP-305 Elev./Depth: 8.5'

△ Source: Sample No.: TP-306 Elev./Depth: 10.0'

EARTH CONSULTANTS, INC.

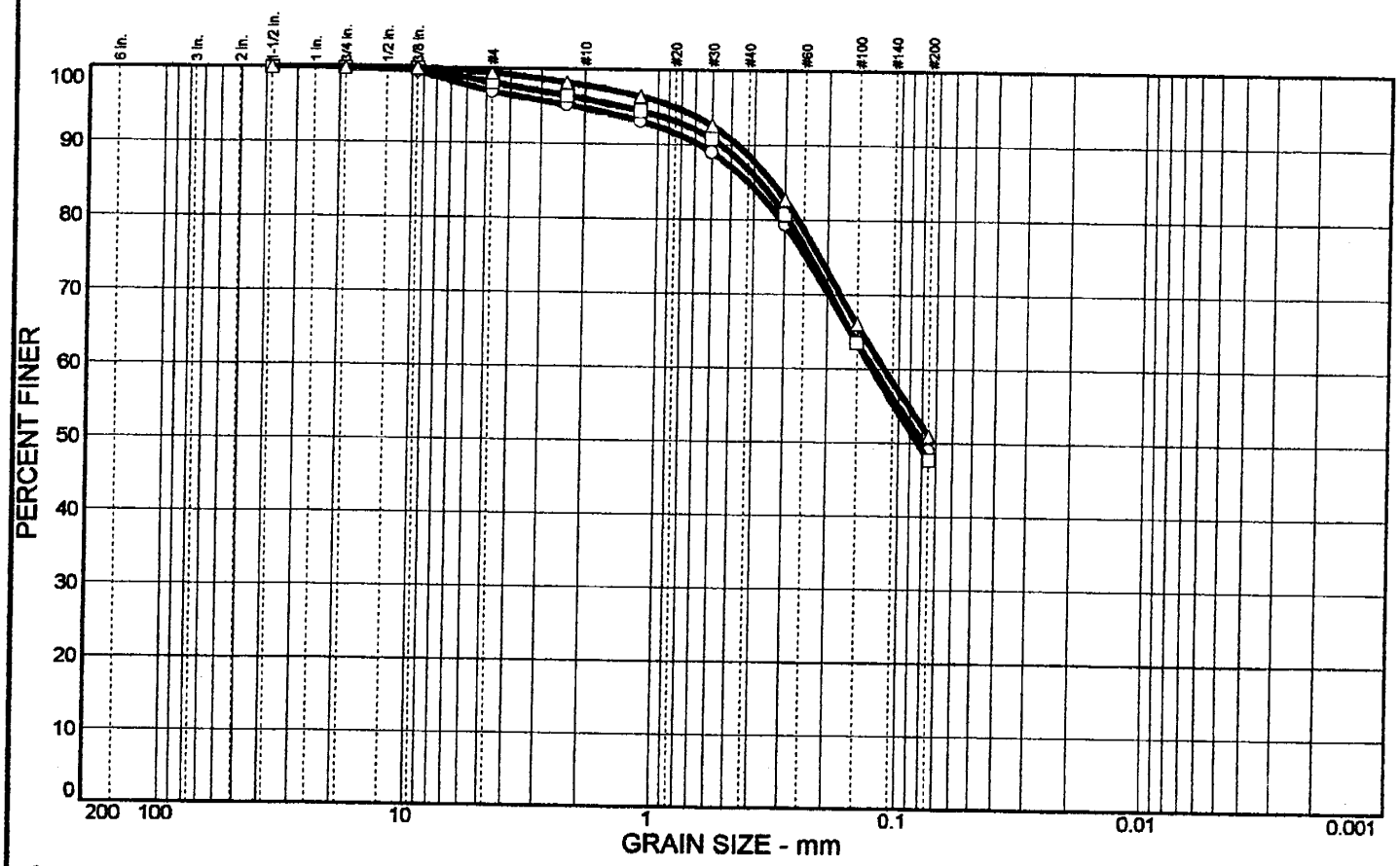
Client:

Project: Wood Trails

Project No.: E-10683

Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		3.1	47.9	49.0		SM			
□		1.9	50.4	47.7		SM			
△		0.6	48.4	51.0		ML			

SIEVE inches size	PERCENT FINER ○	□	△
1.5	100.0	100.0	100.0
3/4	100.0	100.0	100.0
3/8	99.6	100.0	100.0
GRAIN SIZE			
D_{60}	0.128	0.130	0.115
D_{30}			
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	96.9	98.1	99.4
#8	95.2	96.4	98.2
#16	93.1	94.5	96.4
#30	89.0	90.8	92.6
#50	79.3	80.7	82.7
#100	63.6	63.5	66.0
#200	49.0	47.7	51.0

SOIL DESCRIPTION

○ TP-307: 7.5' - SM
Gray silty Sand; 11.1% moisture

□ TP-308: 7.5' - SM
Gray silty Sand; 12.8% moisture

△ TP-310: 9.0' - ML
Gray sandy Silt; 11.7% moisture

REMARKS:

○ Tech: SEP

□ Tech: SEP

△ Tech: SEP

○ Source:	Sample No.: TP-307	Elev./Depth: 7.5'
□ Source:	Sample No.: TP-308	Elev./Depth: 7.5'
△ Source:	Sample No.: TP-310	Elev./Depth: 9.0'

EARTH CONSULTANTS, INC.

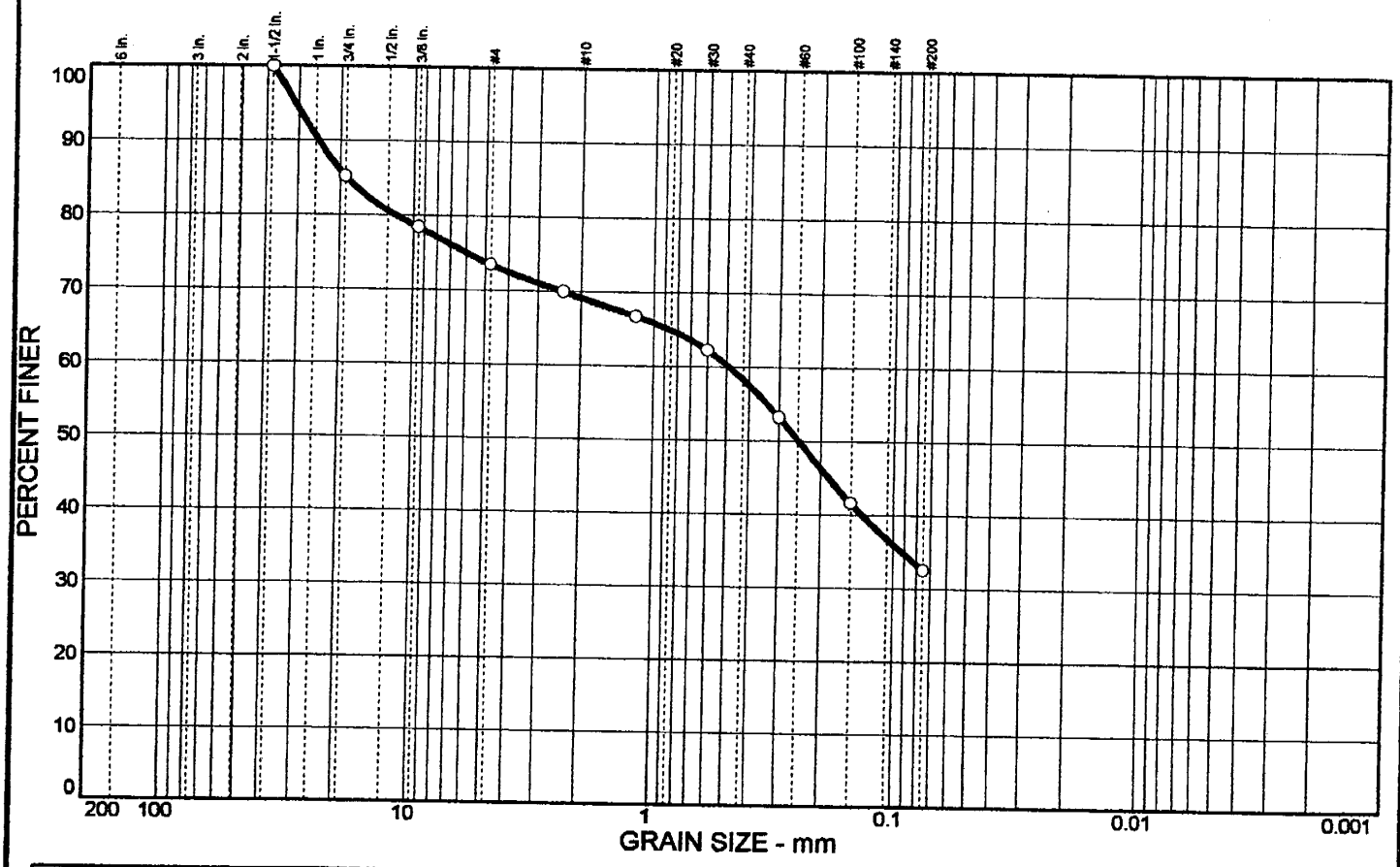
Client:

Project: Wood Trails

Project No.: E-10683

Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		26.5	41.0	32.5		SM			

SIEVE inches size	PERCENT FINER ○
1.5	100.0
3/4	85.2
3/8	78.4

GRAIN SIZE	
D_{60}	0.488
D_{30}	
D_{10}	

COEFFICIENTS	
C_c	
C_u	

SIEVE number size	PERCENT FINER ○
#4	73.5
#8	69.9
#16	66.7
#30	62.2
#50	53.2
#100	41.6
#200	32.5

SOIL DESCRIPTION

○ TP-313: 10.5' - SM
Light gray silty Sand with gravel; 7.8% moisture

REMARKS:

○ Tech: SEP

○ Source:

Sample No.: TP-313

Elev./Depth: 10.5'

EARTH CONSULTANTS, INC.

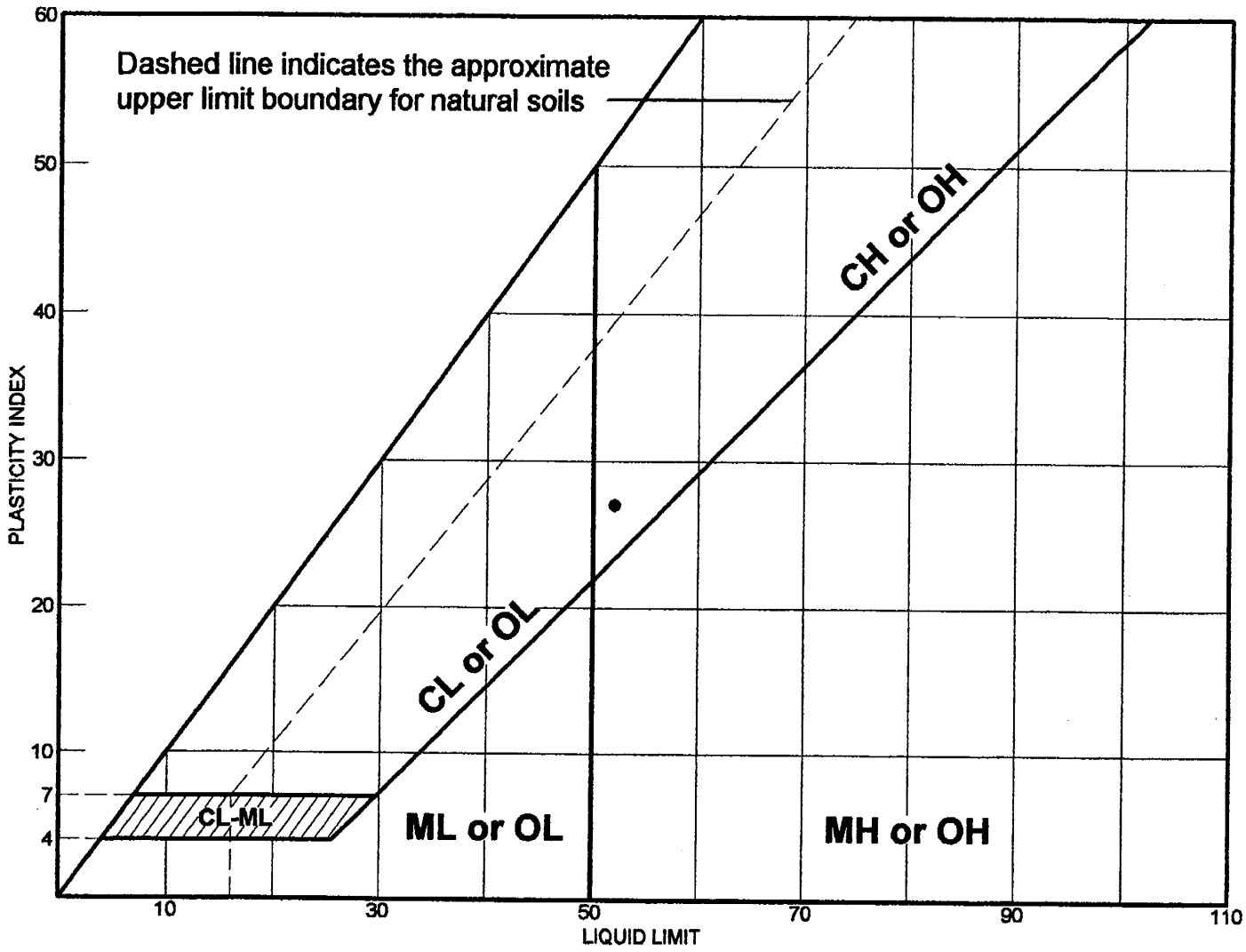
Client:

Project: Wood Trails

Project No.: E-10683

Plate

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	TP-312: 12.0' - CH Blue gray fat Clay; 26.0% moisture	52	25	27			

Project No. E-10683 **Client:**

Project: Wood Trails

● **Source:** **Sample No.:** TP-312 **Elev./Depth:** 12.0'

Remarks:

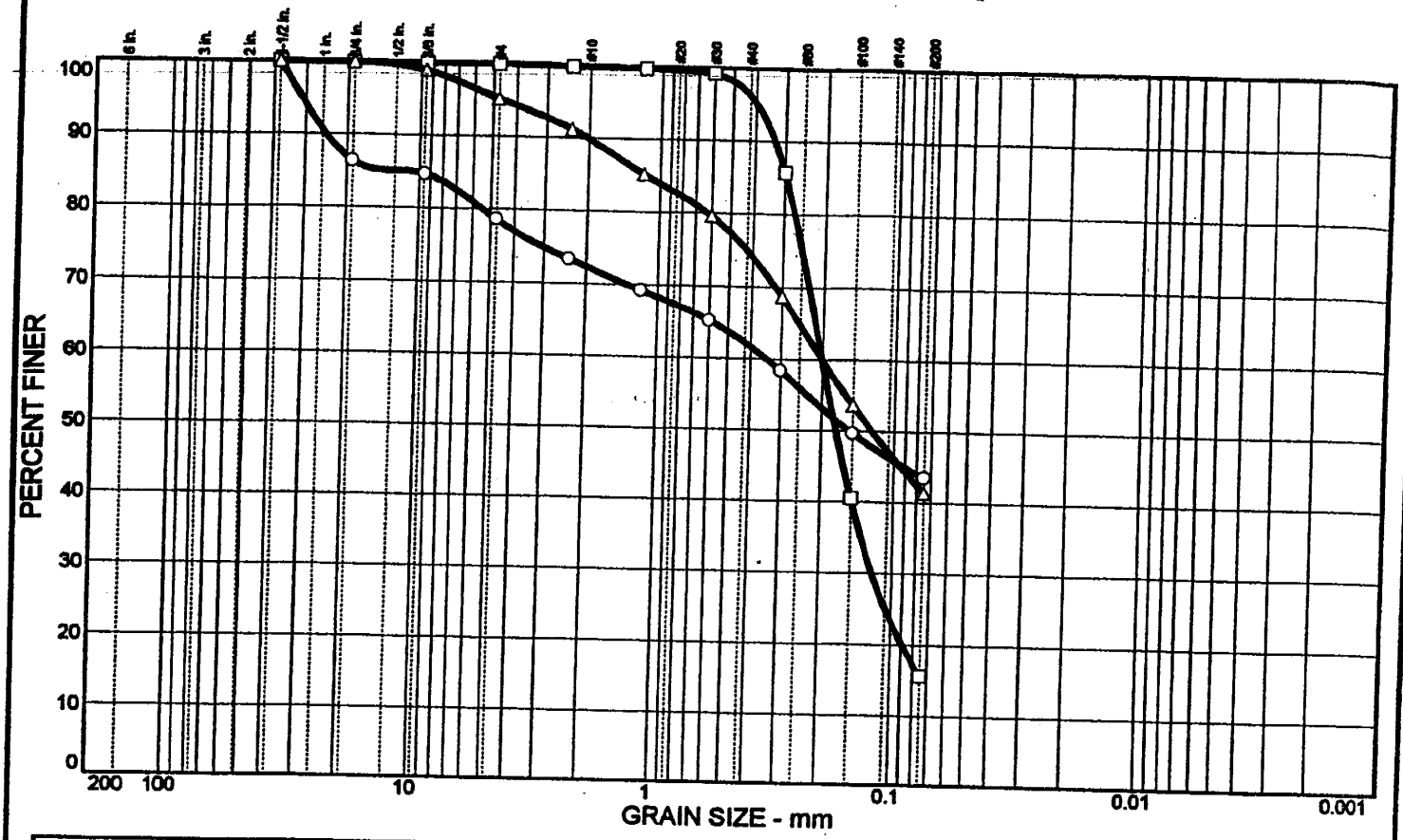
● Tech: SEP

LIQUID AND PLASTIC LIMITS TEST REPORT

EARTH CONSULTANTS, INC.

Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		21.4	35.1	43.5		SM			
□			84.3	15.7		SM			
△		4.8	53.8	41.4		SM			

SIEVE inches size	PERCENT FINER ○	□	△
1.5	100.0	100.0	100.0
3/4	86.4	100.0	100.0
3/8	84.7	100.0	99.0
GRAIN SIZE			
D_{60}	0.341	0.201	0.200
D_{30}		0.121	
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	78.6	100.0	95.2
#8	73.4	99.9	91.2
#16	69.3	99.8	85.2
#30	65.3	99.3	79.6
#50	58.5	85.8	68.8
#100	49.7	40.5	53.7
#200	43.5	15.7	41.4

SOIL DESCRIPTION

○ TP-1: 8' - SM
Silty Sand w/ gravel; 16.4% moisture

□ TP-4: 10' - SM
Silty Sand; 16.6% moisture

△ TP-6: 3' - SM
Silty Sand; 9.2% moisture

REMARKS:

○ tech: SSR/CC

□ tech: SSR/CC

△ tech: SSR/CC

○ Source: Sample No.: TP-1 Elev./Depth: 8'

□ Source: Sample No.: TP-4 Elev./Depth: 10'

△ Source: Sample No.: TP-6 Elev./Depth: 3'

EARTH CONSULTANTS, INC.

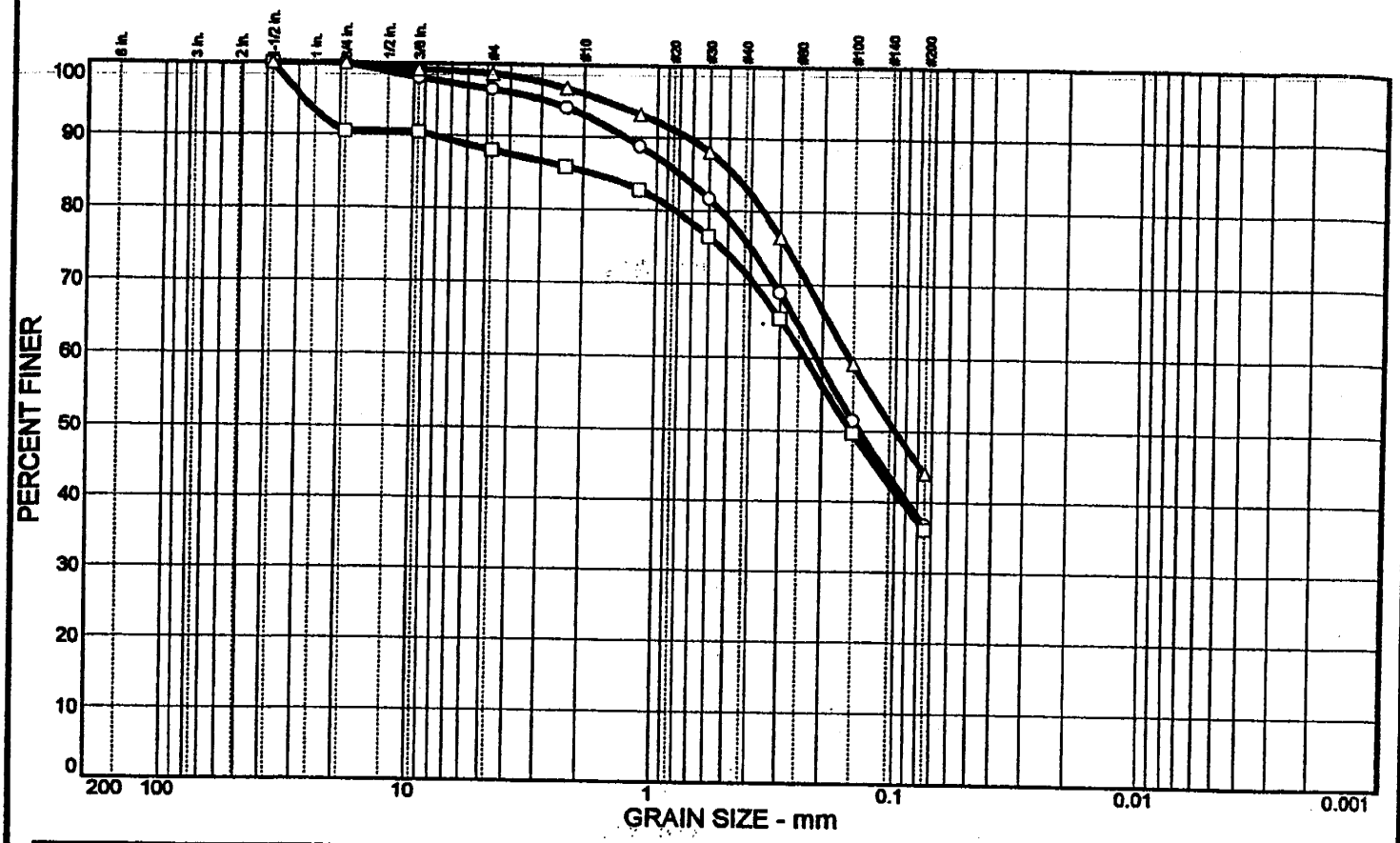
Client:

Project: Sundquist Property

Project No.: E-10683

Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		3.5	59.7	36.8		SM			
□		12.0	51.9	36.1		SM			
△		1.3	54.7	44.0		SM			

SIEVE inches size	PERCENT FINER ○	□	△
1.5	100.0	100.0	100.0
3/4	100.0	90.5	100.0
3/8	98.1	90.5	99.2
GRAIN SIZE			
D_{60}	0.210	0.234	0.155
D_{30}			
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	96.5	88.0	98.7
#8	94.1	85.9	96.8
#16	88.8	82.8	93.2
#30	81.7	76.6	88.1
#50	69.0	65.5	76.6
#100	51.5	49.7	59.2
#200	36.8	36.1	44.0

SOIL DESCRIPTION

○ TP-10: 4' - SM
Brown silty Sand; 10.6% moisture

□ TP-11: 5' - SM
Silty Sand; 10.3% moisture

△ TP-13: 4' - SM
Silty Sand; 10.3% moisture

REMARKS:

○ tech: SSR/CC

□ tech: SSR/CC

△ tech: SSR/CC

○ Source: Sample No.: TP-10 Elev./Depth: 4'

□ Source: Sample No.: TP-11 Elev./Depth: 5'

△ Source: Sample No.: TP-13 Elev./Depth: 4'

EARTH CONSULTANTS, INC.

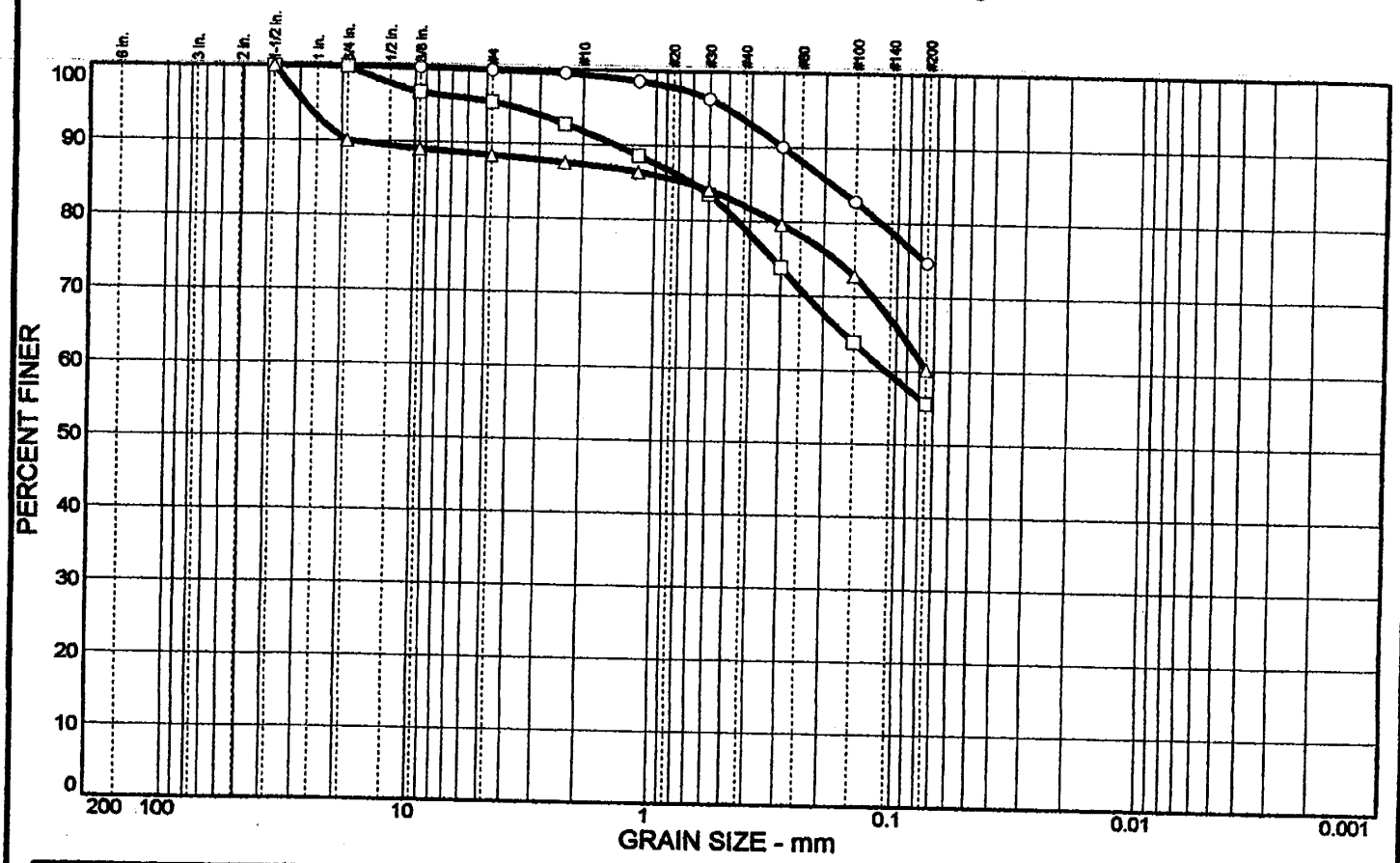
Client:

Project: Sundquist Property

Project No.: E-10683

Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		0.2	25.2	74.6		ML			
□		4.5	39.9	55.6		ML			
△		11.7	28.1	60.2		ML			

SIEVE Inches size	PERCENT FINER ○	□	△
1.5	100.0	100.0	100.0
3/4	100.0	100.0	90.0
3/8	100.0	96.7	89.0
GRAIN SIZE			
D_{60}		0.110	
D_{30}			
D_{10}			
COEFFICIENTS			
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	99.8	95.5	88.3
#8	99.5	92.7	87.5
#16	98.6	88.6	86.4
#30	96.3	83.5	84.1
#50	90.0	73.8	79.6
#100	82.8	63.8	72.8
#200	74.6	55.6	60.2

SOIL DESCRIPTION

○ TP-101: 5' - ML
Brown Silt w/sand; 16.4% moisture

□ TP-101: 10' - ML
Gray sandy Silt; 12.5% moisture

△ TP-102: 9' - ML
Light brown Silt w/sand; 14.5% moisture

REMARKS:

○ STS

□ STS

△ STS

○ Source:	Sample No.: TP-101	Elev./Depth: 5'
□ Source:	Sample No.: TP-101	Elev./Depth: 10'
△ Source:	Sample No.: TP-102	Elev./Depth: 9'

EARTH CONSULTANTS, INC.

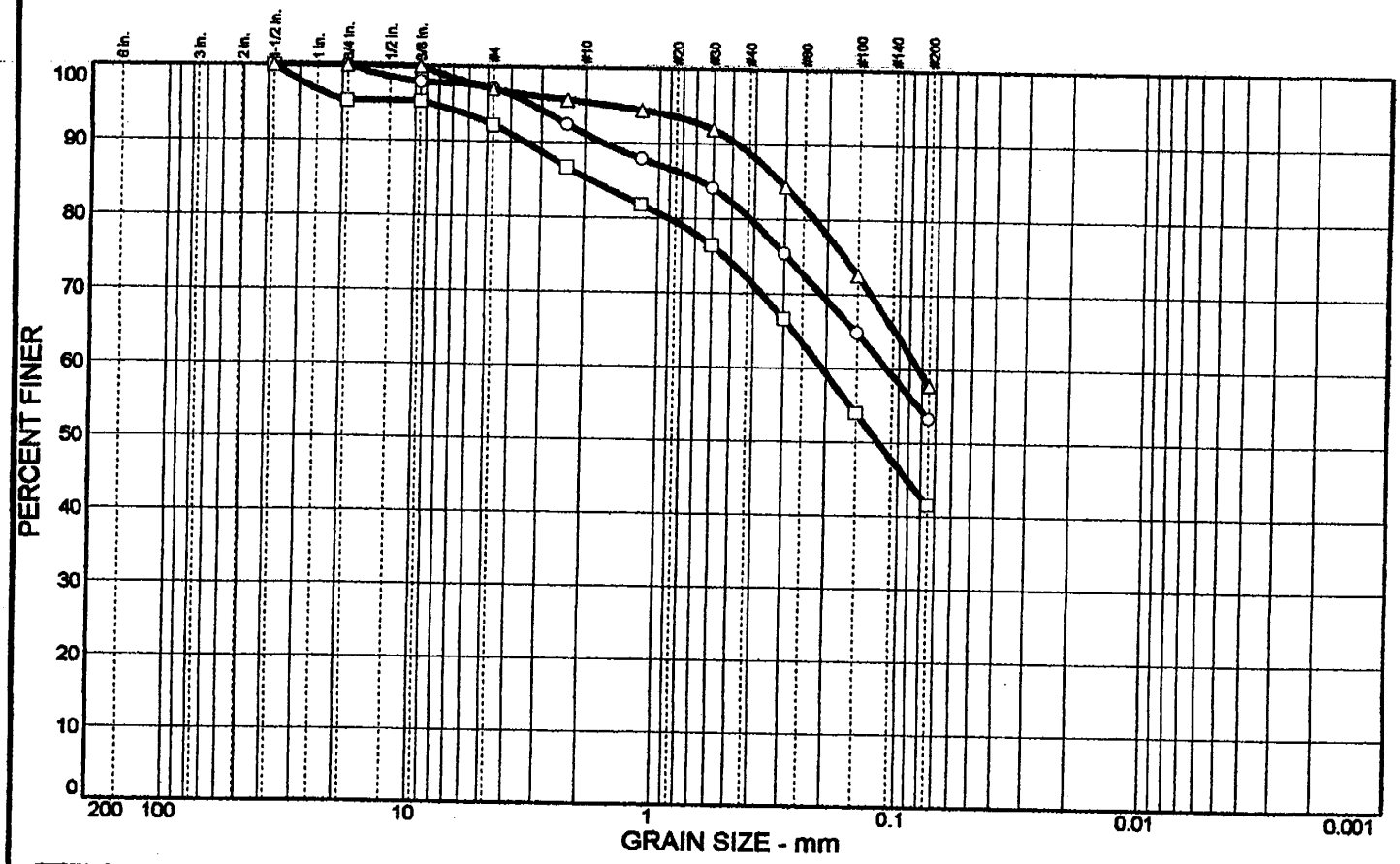
Client:

Project: Wood Trails

Project No.: E-10683

Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		2.9	43.8	53.3		ML			
□		7.8	50.6	41.6		SM			
△		3.0	39.2	57.8		ML			

SIEVE inches size	PERCENT FINER ○	□	△
1.5	100.0	100.0	100.0
3/4	100.0	95.3	100.0
3/8	97.9	95.3	100.0
	GRAIN SIZE		
D_{60}	0.112	0.207	0.0828
D_{30}			
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	97.1	92.2	97.0
#8	92.4	86.7	95.7
#16	87.9	81.8	94.4
#30	84.1	76.4	91.9
#50	75.4	66.6	84.4
#100	64.8	54.0	72.6
#200	53.3	41.6	57.8

SOIL DESCRIPTION

○ TP-103: 2' - ML
Brown sandy Silt; 19.8% moisture

□ TP-104: 4' - SM
Light brown silty Sand; 21.1% moisture

△ TP-105: 6' - ML
Light brown sandy Silt; 14.4% moisture

REMARKS:

○ STS

□ STS

△ STS

○ Source: Sample No.: TP-103 Elev./Depth: 2'

□ Source: Sample No.: TP-104 Elev./Depth: 4'

△ Source: Sample No.: TP-105 Elev./Depth: 6'

EARTH CONSULTANTS, INC.

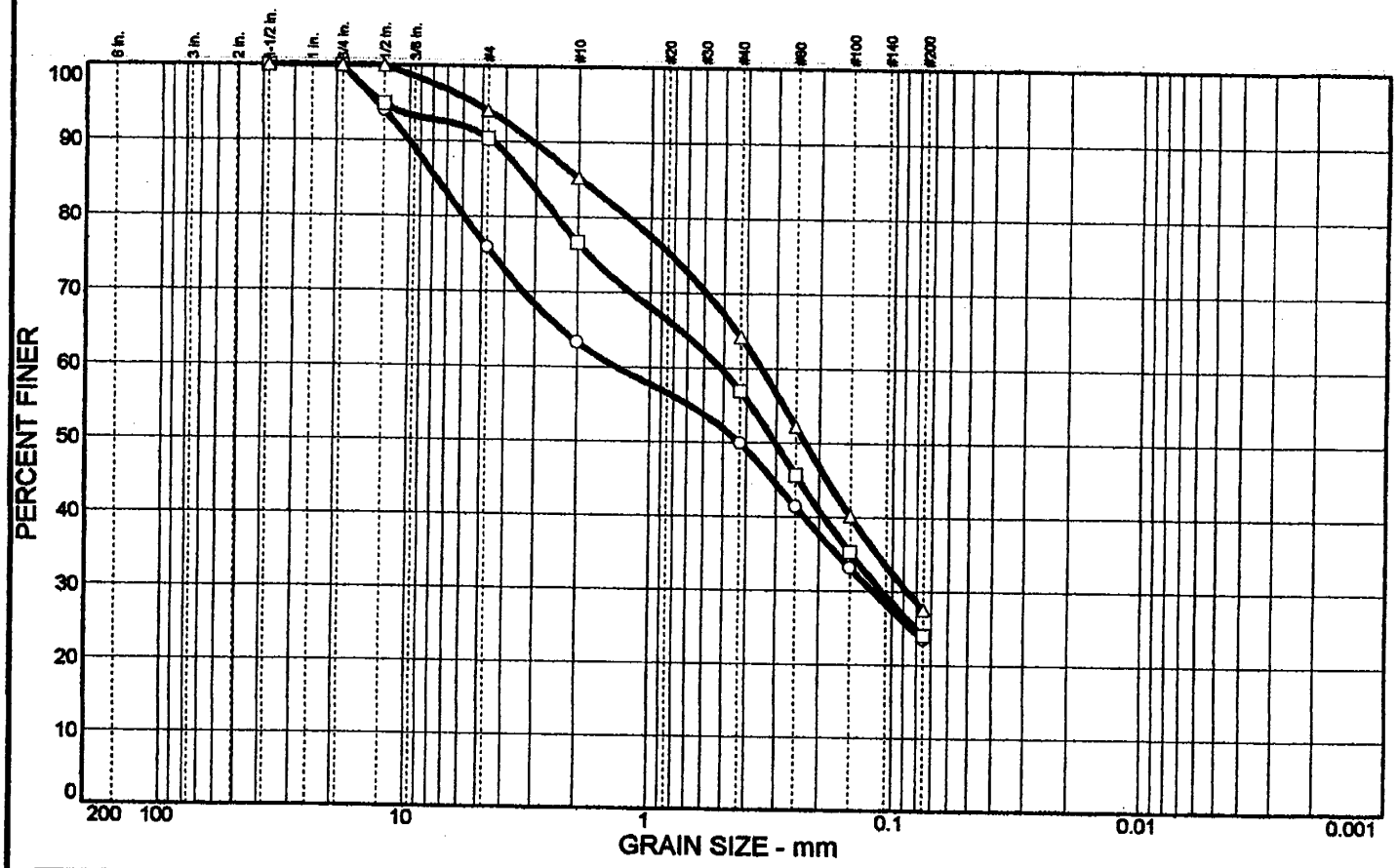
Client:

Project: Wood Trails

Project No.: E-10683

Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		24.1	52.4	23.5		SM			
□		9.6	66.4	24.0		SM			
△		5.9	66.6	27.5		SM			

SIEVE Inches size	PERCENT FINER ○	□	△
1.5	100.0	100.0	100.0
0.75	100.0	100.0	100.0
0.5	94.0	94.9	100.0
	GRAIN SIZE		
D_{60}	1.37	0.512	0.349
D_{30}	0.120	0.110	0.0870
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	75.9	90.4	94.1
#10	63.3	76.6	85.3
#40	49.9	56.9	64.2
#60	41.4	45.7	52.2
#100	33.2	35.3	40.2
#200	23.5	24.0	27.5

SOIL DESCRIPTION

○ TP-108: 3' - SM
Brown silty Sand w/gravel; 19.1% moisture

□ TP-109: 3' - SM
Brown silty Sand; 17.5% moisture

△ TP-110: 4' - SM
Light brown silty Sand; 16.6% moisture

REMARKS:

○ STS

□ STS

△ STS

○ Source: Sample No.: TP-108 Elev./Depth: 3'

□ Source: Sample No.: TP-109 Elev./Depth: 3'

△ Source: Sample No.: TP-110 Elev./Depth: 4'

EARTH CONSULTANTS, INC.

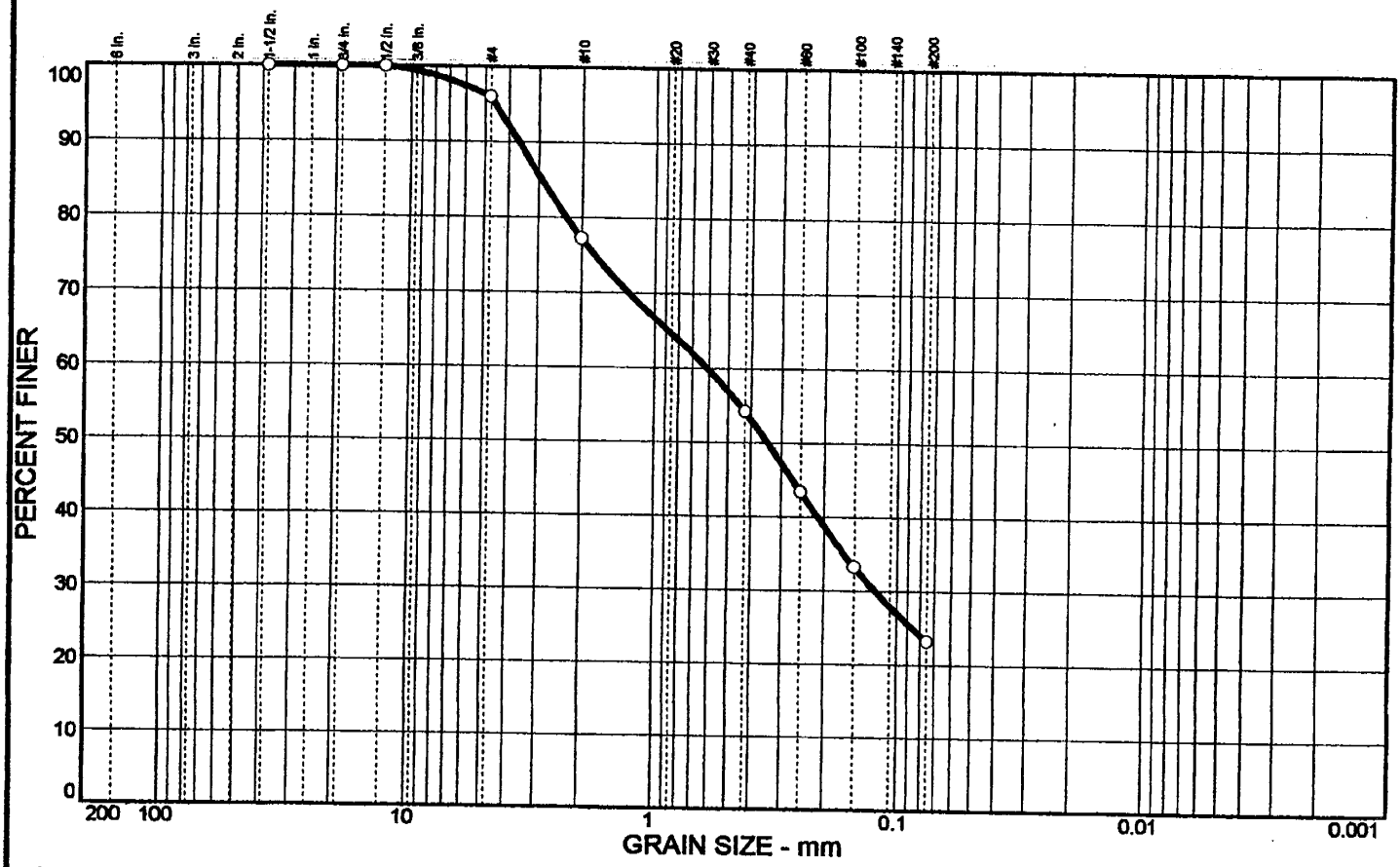
Client:

Project: Wood Trails

Project No.: E-10683

Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		4.0	72.8	23.2		SM			

SIEVE inches size	PERCENT FINER ○		
1.5	100.0		
0.75	100.0		
0.5	100.0		
	GRAIN SIZE		
D_{60}	0.609		
D_{30}	0.123		
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ○		
#4	96.0		
#10	77.2		
#40	54.2		
#60	43.4		
#100	33.3		
#200	23.2		

SOIL DESCRIPTION

○ TP-111: 3' - SM
Light brown silty Sand; 14.8% moisture

REMARKS:

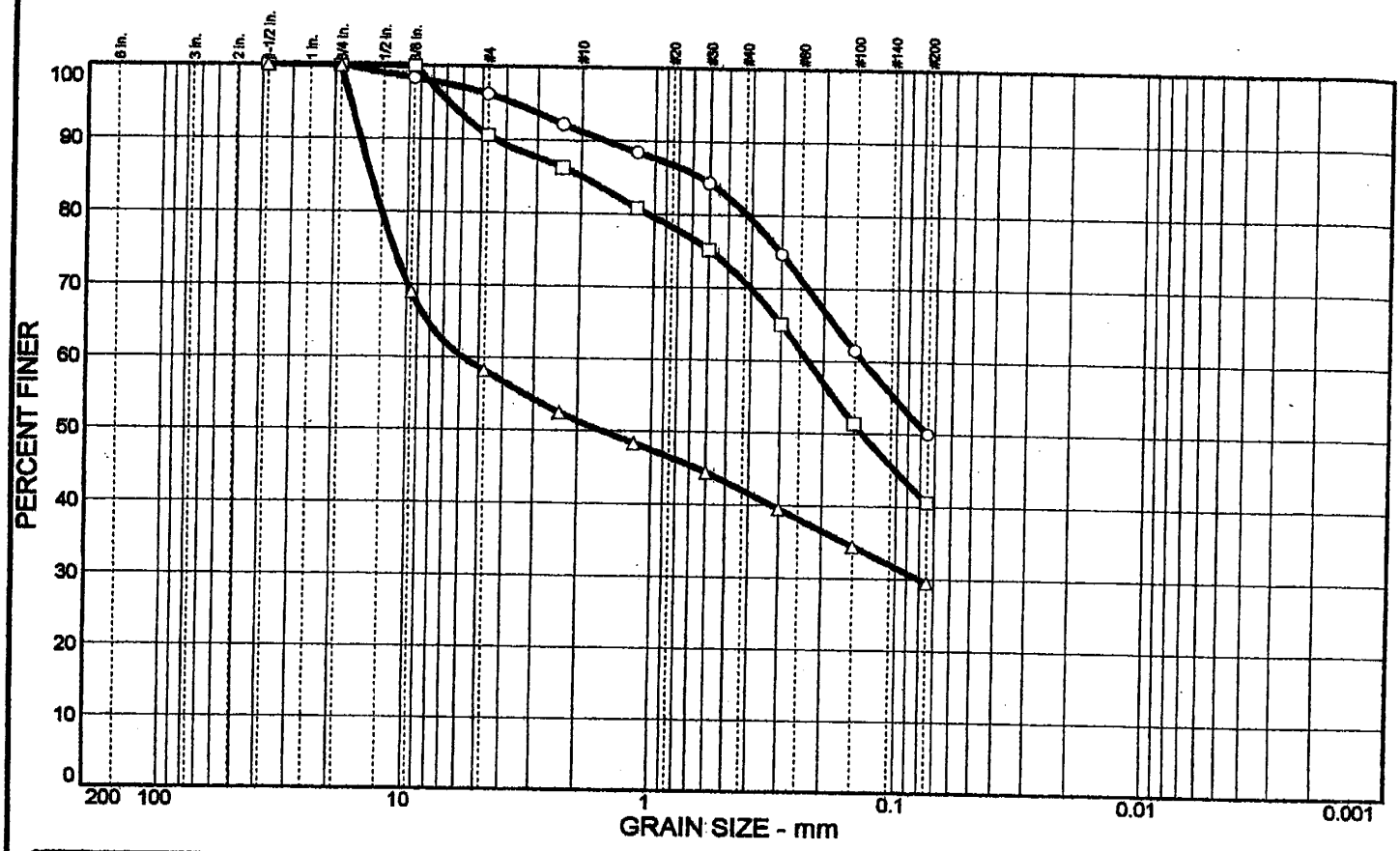
○ STS

○ Source: Sample No.: TP-111 Elev./Depth: 3'

EARTH CONSULTANTS, INC.

Client:
Project: Wood Trails
Project No.: E-10683
Plate

Particle Size Distribution Report



	% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY	USCS	AASHTO	PL	LL
○		3.8	46.2	50.0		ML			
□		9.4	50.0	40.6		SM			
△		41.8	28.7	29.5		SM			

SIEVE Inches size	PERCENT FINER ○	□	△
1.5	100.0	100.0	100.0
3/4	100.0	100.0	100.0
3/8	98.3	100.0	69.0
	GRAIN SIZE		
D_{60}	0.138	0.231	5.81
D_{30}			0.0804
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ○	□	△
#4	96.2	90.6	58.2
#8	92.2	86.3	52.5
#16	88.4	80.8	48.3
#30	84.3	75.2	44.4
#50	74.7	65.1	39.5
#100	61.5	51.4	34.5
#200	50.0	40.6	29.5

SOIL DESCRIPTION

○ B-1: 5.0' - ML
Brown sandy Silt; 21.8% moisture

□ B-2: 10.0' - SM
Brown silty Sand; 15.6% moisture

△ B-2: 20.0' - SM
Brown silty Sand with gravel; 6.0% moisture

REMARKS:

○ Tech: SEP

□ Tech: SEP

△ Tech: SEP

○ Source: Sample No.: B-1 Elev./Depth: 5.0'
□ Source: Sample No.: B-2 Elev./Depth: 10.0'
△ Source: Sample No.: B-2 Elev./Depth: 20.0'

EARTH CONSULTANTS, INC.

Client:
Project: Wood Trails
Project No.: E-10683

Plate

APPENDIX C

PHOTOGRAPHS

ES-0067

Woodtrails - Supplemental test pits in detention pond. Dense to very dense Silt and Silt with Gravel. Excavated to 20 feet.

Photos Dated June 2005

Job No. ES-0067
Plate 3

Photo 1: Test Pit TP-301

Photo 2: Test Pit TP-303

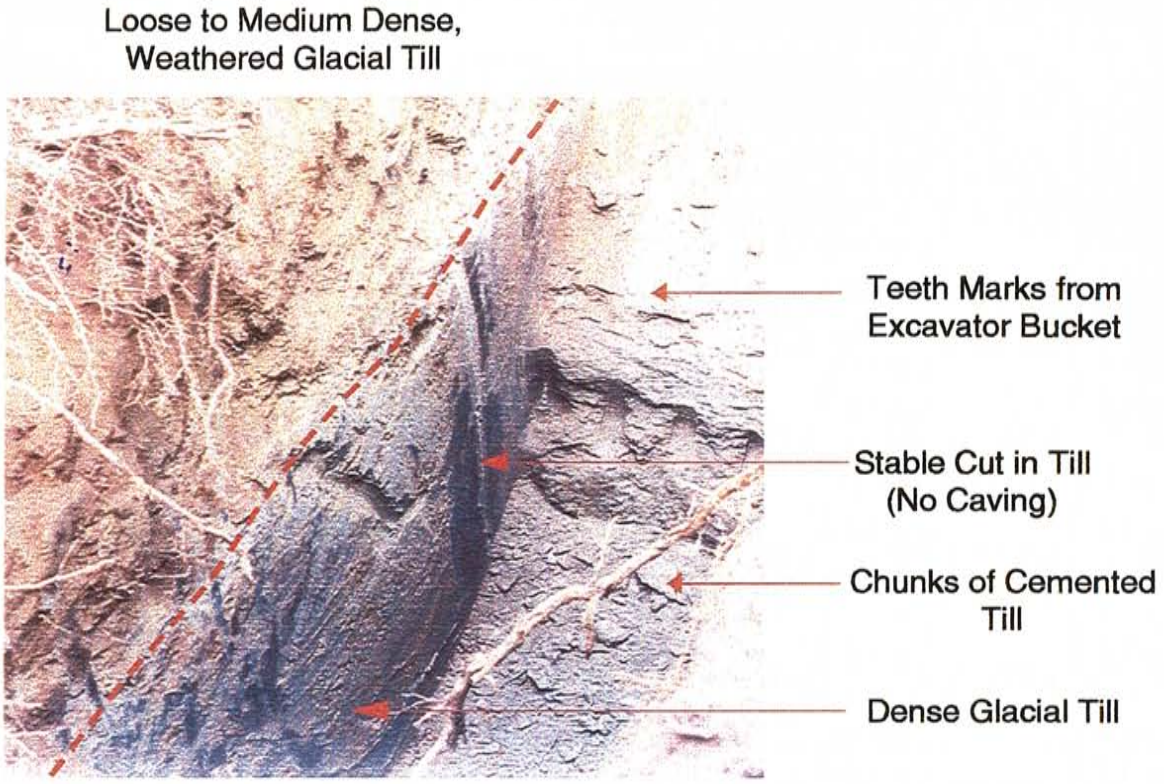


Photo 3: Test Pit TP-304

Photo 4: Test Pit TP-306

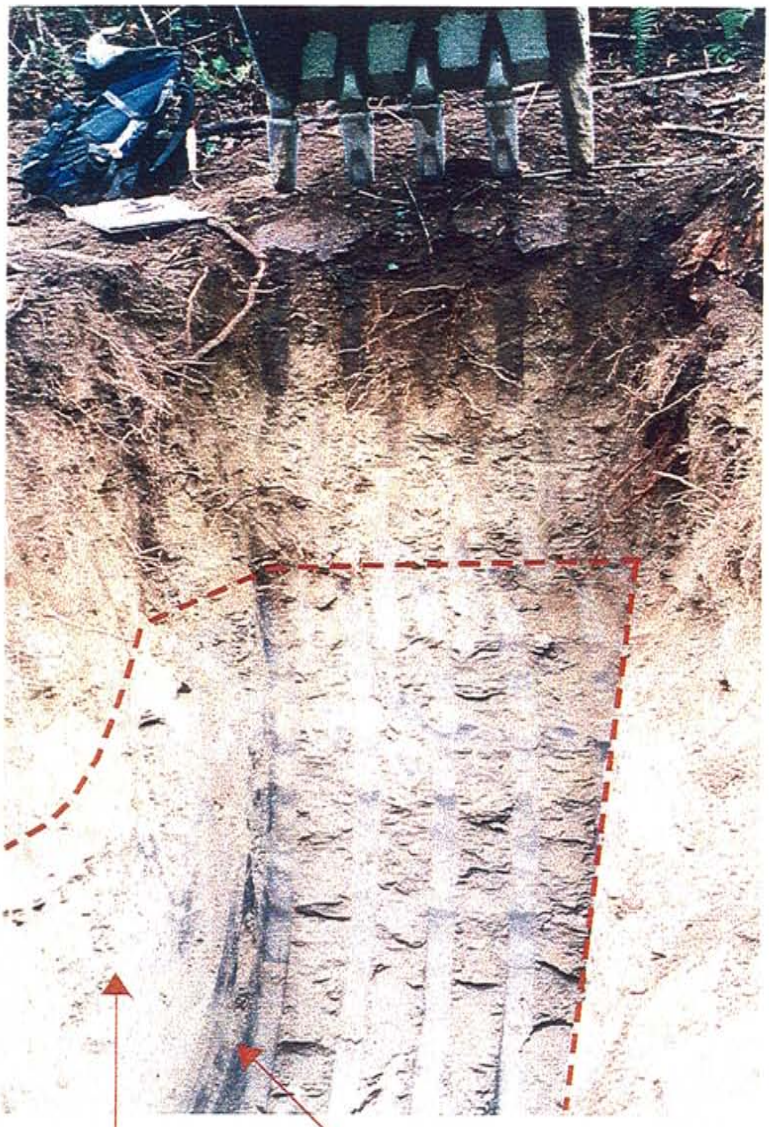


Photo 5: Test Pit TP-308